January, 1954

The American School Board Journal

A PERIODICAL OF SCHOOL ADMINISTRATION

In This Issue:

Research Laboratory Classroom, Daylighting Laboratory, University of Michigan

America's most advanced schoolroom

The "Classroom of Tomorrow" has been built in the Daylighting Laboratory at the University of Michigan to demonstrate the new flexibility now possible in interior design—choice of materials, color and equipment without loss of high-quality daylighting which is so important to the education, the health and general well-being of the school child.

Twelve years of daylight research at the Engineering Research Institute, University of Michigan, has made possible this "Classroom of Tomorrow."

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The ideas perfected in this Research Laboratory Classroom are available to you now. Write for details and see how these Owens-Illinois products can produce a better learning environment in your schoolrooms. Address: Classroom Research, Owens-Illinois Glass Company, Dept. AS-1, Box 1035, Toledo 1, Ohio.

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Plaza opens up site area to give the three buildings greater ground floor income values

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• Genius has scored another win by giving Denver its new MILE HIGH CENTER—an outstanding architectural achievement of significant benefit to owners and occupants, and also a stimulant to citizenry pride. The sloping site of the "Center" is dominated by a 23-story office tower surrounded by a plaza which extends beneath it. Bordering the plaza on one side is a bank building. On the higher street level is a new airline downtown office and below it a restaurant facing the plaza. The all-glass curtain wall of the impressive office tower is interrupted only by gray cast-aluminum covering the structural columns and beams, and the off-white porcelain enamel horizontals and verticals which encase the heating and cooling system. All windows are fixed and will be washed from a traveling platform which runs up and down the face of the structure. SLOAN *Flush* VALVES, famous for efficiency, durability and economy, were selected for installation throughout Mile High Center—more evidence of preference that explains why . . .

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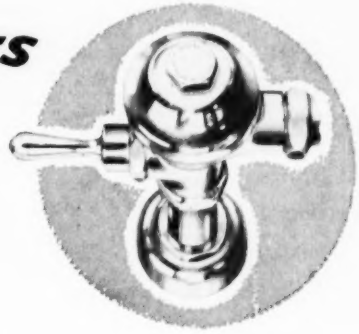
Another achievement in efficiency, endurance and economy is the SLOAN *Act-O-Matic* SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the *Act-O-Matic*—the better shower head for better bathing.



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VOL. 128 NO. 1

THE AMERICAN School Board Journal

A Periodical of School Administration

January 1954

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EDITORIALS:

DEPARTMENTS:

Feast your eyes on America's newest, most modern and practical . . .

A-D's CRUSADER

Chair Desk

The features of this chair add up to a point-by-point outline of the perfect chair desk — one unit with all of these features combined:

- Built-in posture control in seat and back
- Larger-than-average storage space
- Heavier-gauge steel construction for durability and rigidity
- Room and comfort of the one-post arm support

Write or wire your American Desk distributor for a personal demonstration of this superior classroom unit.

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Deeper and wider: more space than in any other unit of this type on the American market.

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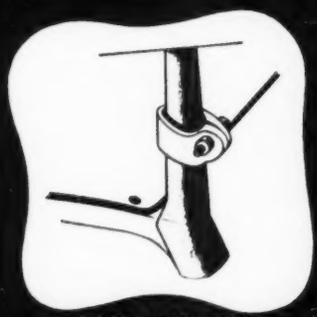
Heavier gauge: the 14-gauge die-formed frame with 22-gauge panels.



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53-12

"All Aboard"

Association Leaders Hail Significance of Nationwide Study Conference

Edward M. Tuttle

"The best meeting I have ever attended!"

Over and over this comment was heard in the lobbies and meeting rooms of the Hotel McCurdy in Evansville, Ind., as delegates to the First Nationwide Study Conference of School Board Association Leaders said good-by to one another and scattered to their homes in 45 states.

As announced in these columns in November, this Study Conference, or Workshop as some liked to call it, came off on schedule, November 13, 14, 15, 1953. The meeting was made possible by a grant of money to the National School Boards Association through the National Citizens Commission for the Public Schools. Acting as liaison between the two organizations was O. H. (Herb) Roberts, Jr., president of the Evansville board of education, member and trustee of the Citizens Commission, and a director of the N.S.B.A. As head of the planning group, he was largely responsible for the outstanding success of the conference.

Who Was There

All but three states were represented. Maine and Maryland have no state school boards associations. Letters to their state superintendents of schools suggested that perhaps a couple of leading board members might be invited to come to the conference, but this did not work out. Nevada is just getting an association started and had planned to send a representative, but at the last minute he could not come.

WORK IN FAITH

All work that is worth anything is done in faith. — ALBERT SCHWEITZER.

Someone has said that hope is confidence in the future but that faith is confidence in the present. And it is the present with which we have to deal — here, now, on the threshold of a New Year. The Bible warns us that faith without works is barren. Conversely, a great humanitarian and Nobel peace prize winner implies in the quotation above that works without faith are of little worth. It takes a combination of the two — faith and works, works in faith — to guarantee results of lasting value. In the field of education, we may be certain that generous service performed in a spirit of confidence, like good seed sown upon fertile ground, in due season will yield a rich and rewarding harvest. — *E. M. T.*

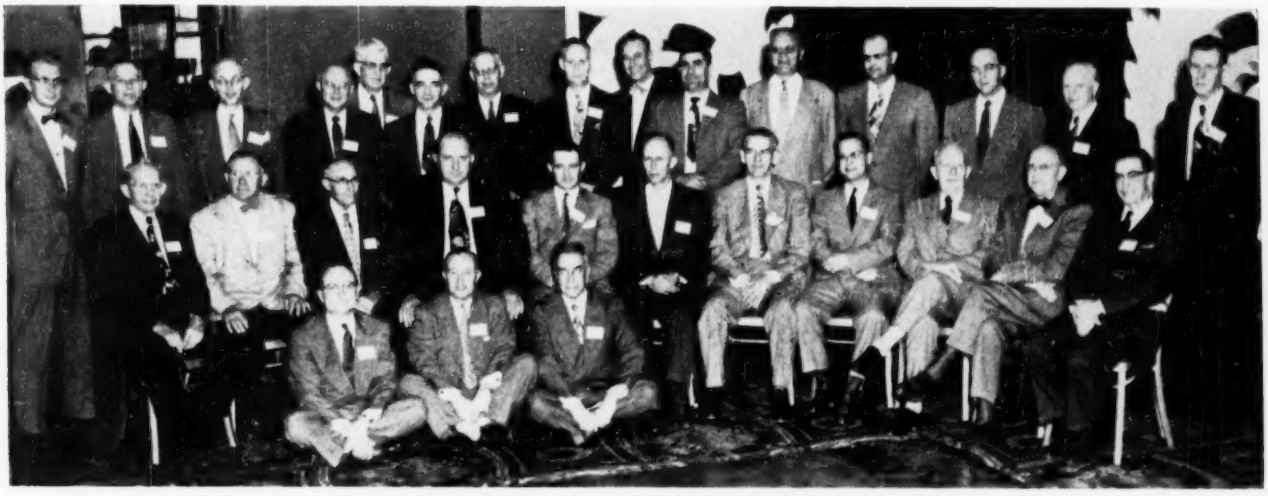
From the other 45 states came 16 national officers and directors, 34 state association presidents, 25 other state leaders — vice-presidents, past presidents, directors, and board members, 38 state association secretaries or their direct representatives, and a half dozen guest authorities on association work who helped as moderators and consultants.

All the first day, Friday, representatives kept arriving in Evansville to find that the hotel management and the local committee on arrangements under the able chairmanship of Harry Wey, Jr., director of athletics in the Evansville public schools, had anticipated their every need. It took only a very few minutes to check in and to secure name badges (prepared in advance), meal tickets, program, list of participants, and packet of helpful informational materials. Old friends and new met, visited, and lunched together, establishing quickly the friendly, informal pattern which marked the entire conference. By dinner time, when the meeting was scheduled to get under way, the group was almost 100 per cent complete.

How the Conference Was Organized

The conference program called for dinner together and an opening session for all dele-

(Continued on page 8)

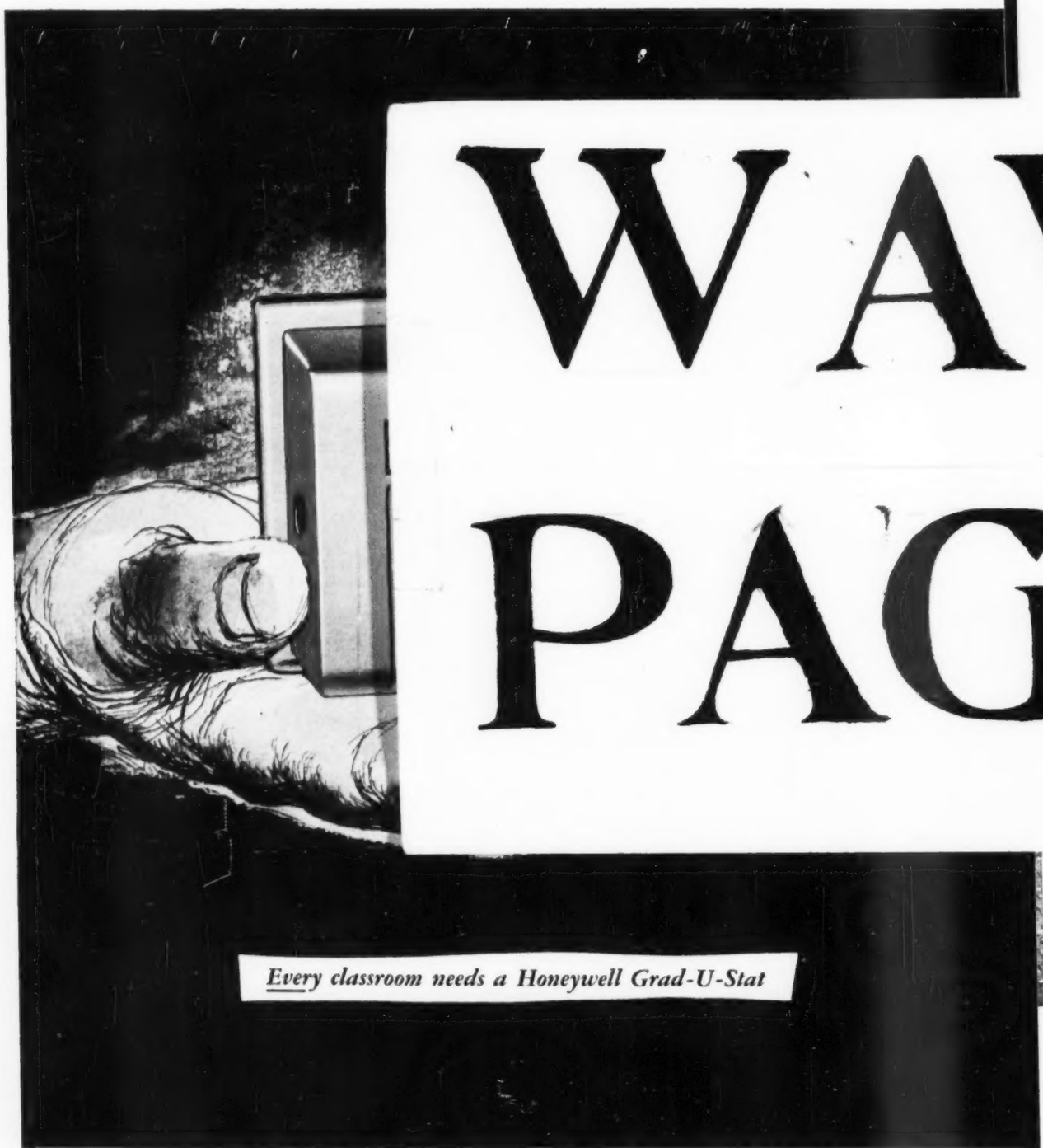


A Group of Association Secretaries at the Conference

Seated on Floor (left to right): Roger M. Shaw, Northeastern Ohio; James W. Whitehead, Massachusetts; and Edward M. Tuttle, Secretary of N.S.B.A.
Seated in Chairs (left to right): Homer Davis, Arizona; John Young, West Virginia; S. H. Sixma, Michigan; S. L. Knight, Mississippi; W. A. Wettergren, Minnesota; Elmer E. Stanley, Washington; J. L. Gleason, Sr., Montana; Paul Toth, New York; George Howard, Alabama; L. E. Meece, Kentucky; and H. E. Wrinkle, Oklahoma.
Standing (left to right): John H. Swenson, Colorado; J. C. Eddy, Idaho; Hugh Staffon, Wisconsin; Robert M. Cole, Illinois; P. O. Van Ness, Pennsylvania; C. Vance Lucas, Wyoming; Lawrence B. White, California; Paul E. Farnum, New Hampshire; Don A. Foster, Iowa; Benjamin A. Rogers, Missouri; W. J. Andrews, Georgia; William B. Rich, Tennessee; Donald Nugent, Texas; Fred G. Thatcher, Louisiana; and Jesse Foster, New Jersey.

Good temperature control means brighter classes . . .

Does your school have the best her



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to create ideal conditions for better learning. For example, the Honeywell thermostat can be set to supply less heat and more fresh air during logy periods, during tests or increased classroom activity.

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Good temperature control means brighter classes . . .

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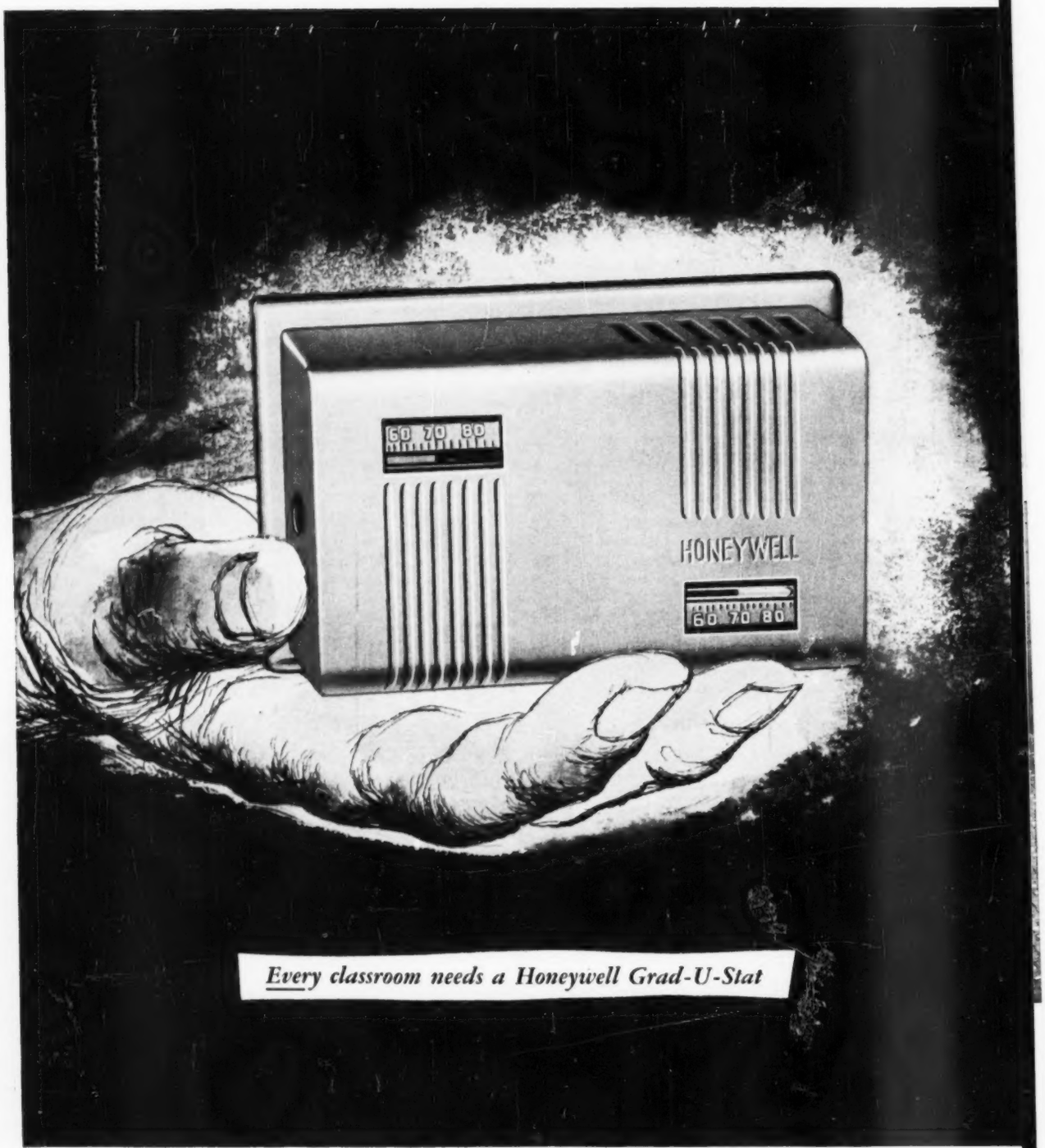

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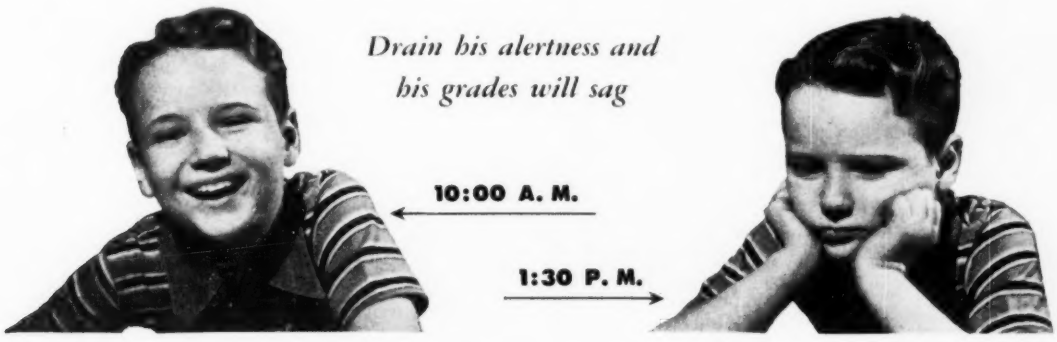
You'll have brighter, more alert classes when you install Honeywell Grad-U-Stats *in each one of your classrooms.* Grad-U-Stats are the best-known pneumatic thermostats, and are found in the finest schools all over the country—your best assurance of exceptional accuracy and responsiveness.

And Honeywell service is well known all over the country, too. A skilled Honeywell engineer will advise you on new installations, modernization, or help you on any maintenance needed for your present control system.



A student's reactions vary widely. If he returns to a hot, stuffy classroom after a good lunch and an active lunch period—he'll be completely disinterested in learning! But he'll *stay* alert in a Honeywell-Controlled classroom . . . his afternoon reactions will be as vibrant as those at 10:00 a. m.

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N.S.B.A. STUDY CONFERENCE

(Continued from page 5)

gates on Friday evening; five working groups, meeting both morning and afternoon on Saturday; a general session Sunday morning to receive reports and recommendations from the five groups as to an action program for the future; and on Sunday afternoon, a series of meetings by regions, at which state association officials from groups of neighboring states might exchange information and consider the possibilities of closer regional co-operation. All delegates ate together in informal luncheons on Saturday and Sunday, but Saturday evening they were left to their own devices.

Coincidentally, the executive committee of the N.S.B.A., with 16 of its 17 voting members in attendance, held extended sessions on Saturday morning, Saturday evening, and Sunday afternoon. Heretofore, the committee has been able to meet together only once a year at our annual conventions, and this added opportunity for face-to-face discussion of association business was most welcome and highly valued.

Off to a Fine Start

Dinner on Friday evening was a happy affair, with members of the Evansville school staff acting as hosts and hostesses at the various tables, and lovely music furnished by pupils from the Evansville public schools. In fact, at each of the three meals the conference ate together, an outstanding feature was the musical offerings by instrumental and vocal groups from a half dozen elementary, junior and senior high schools of the city.

N.S.B.A. president Clifton B. Smith of Freeport, N. Y., presided at the dinner meeting and introduced in succession the Hon. H. O. Roberts, mayor of Evansville (no relation to our own O. H. Roberts, Jr.), Kenneth C. Kent, president of the Evansville Chamber of Commerce, and Ralph Becker, superintendent of the Evansville Public Schools, who extended greetings and spoke of the pleasure Evansville civic, business, and educational groups took in having this first nationwide gathering of school board association leaders in their midst.

There followed short talks by Harry Wey, Jr., explaining the conference facilities; by O. H. Roberts, Jr., setting forth the purposes of the conference and urging maximum participation on the part of everyone; by Dr. Maurice E. Stapley of Indiana University, co-ordinator of the program, describing the proposed organization and operation of the conference; and by Edward M. Tuttle, executive secretary of the N.S.B.A., outlining plans for the meetings of the executive committee and ways of co-ordinating state and national study.

Saturday's Working Groups

At 9:00 a.m. on Saturday, the conference participants divided voluntarily and quite evenly into five working groups to examine during the morning the purposes and accomplishments of state school boards associations with respect to:

A. The Selection, Orientation, and In-Service Education of Individual Board Members.
B. Improving the Operation of Local Boards of Education.
C. Defining and Solving Educational Problems Which Cannot Be Solved at the Local Level.
D. Perfecting the Organization and Financing the Activities of State School Boards Associations.
E. Developing the Prestige of a State Association.

In the afternoon, the same groups met again for three hours and, on the basis of the background discussion of the morning, sought to discover (1) areas of weakness in state programs, (2) ways in which help could be given the states by the National School Boards Association, and (3) what additional activities should be performed by the N.S.B.A.

Each group was provided with a chairman and a recorder selected from among the participants by the conference co-ordinator, Dr. Stapley, who is assistant dean of education at Indiana University and executive secretary of the Indiana School Boards Association. Dr. Stapley has had extensive experience with school board workshops and school board research, and it was his skill in organizing the discussion groups and in providing the participants in each group with a series of thought-provoking questions which was largely

(Continued on page 10)

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N.S.B.A. STUDY CONFERENCE

(Continued from page 8)

responsible for the successful outcome of the conference.

Conclusions and Recommendations

The general session on Sunday morning to hear group conclusions and recommendations was moderated by Dr. Francis S. Chase, director of the Midwest Administration Center of the Cooperative Program in Educational Administration (Kellogg Project) at the University of Chicago. It will be recalled that Dr. Chase made possible regional conferences for midwestern state school board leaders during the summers of 1952 and 1953, and his interest and advice have been invaluable. The reports were made by the recorders of the five groups, two of whom were state association presidents, two state association secretaries, and one a research administrator for a local board in Indiana.

Group A reported its unanimous conclusion that state and national school boards associations have a definite responsibility to improve the process of selecting school board members, to give added status to school board membership, and to use every means to arouse and inform the public on this important subject. It felt that much could be done for boards through wider use of handbooks, consultative services, and workshops, and that far greater use of press, radio, and television outlets should be made in reaching the general public. It urged surveys and studies as to methods of co-operating with higher institutions to develop research needs, and suggested that the N.S.B.A. should function as a major clearing-house for research interpretation and the co-ordination of proposed research.

Group B concluded that there is great room for improvement in the operation of local boards of education, and suggested that if a few tape recordings of actual board meetings could be made and played back to board members, ways of improving procedures would quickly reveal themselves. It urged that all state associations work toward having a full-time secretary, more regional meetings within the state, a good publications program, sound legislative activities, and endeavor to secure 100 per cent participation of local boards. It urged the N.S.B.A. to develop more frequent and regular channels of information to the several states, to co-operate as fully as possible with other organizations on the national level working in the interest of public schools, and to utilize all media of mass communication to make better known the purposes and activities of school boards and their associations everywhere throughout the nation.

Group C found that educational problems which cannot be solved at the local level, and which require co-operative effort through state association, fall chiefly in the realm of legislation affecting such matters as the organization of the State Board of Education and the Office of Public Instruction, the amount and distribution of state aid to schools both for maintenance and construction, the development of foundation programs, and problems concerning the general welfare of pupils and school staff. It urged that state associations hold more regional conferences on legislative matters, and develop methods of speedy communication with all local boards. It suggested that associations take the lead in co-ordinating the efforts of all state agencies and organizations concerned over public education in developing a desirable and essential working program of legislation at each session of the legislature. It hoped that the N.S.B.A. would expand its consultative and publications services to state associations, and develop a legislative committee on the national level to advise with the states and report at the annual conventions.

Group D, dealing with organizing and financing the activities of state school boards associations, found that many of its conclusions were reflected in the reports of other groups but emphasized (1) that annual dues should be collected from *boards,* not from individual board members, (2) that dues should be on some kind of a sliding scale dependent on the size of each board's jurisdic-

(Concluded on page 100)

N.S.B.A. Executive Committee in Session

Left to right (omitting reporter in left background): Mrs. Russell B. Petty, Utah; Mrs. Oscar E. Hedin, Minnesota; Edwin T. Coulbourn, Virginia; Dr. Taylor T. Hicks, Arizona; E. M. Tuttle, Executive Secretary; Clifton B. Smith, New York, President; John H. Woodall, Sr., Georgia; Jack Merchant, California; W. I. Kocurek, Texas; Mrs. H. M. Mulberry, Illinois; J. G. Stratton, Oklahoma; O. H. Roberts, Jr., Indiana.

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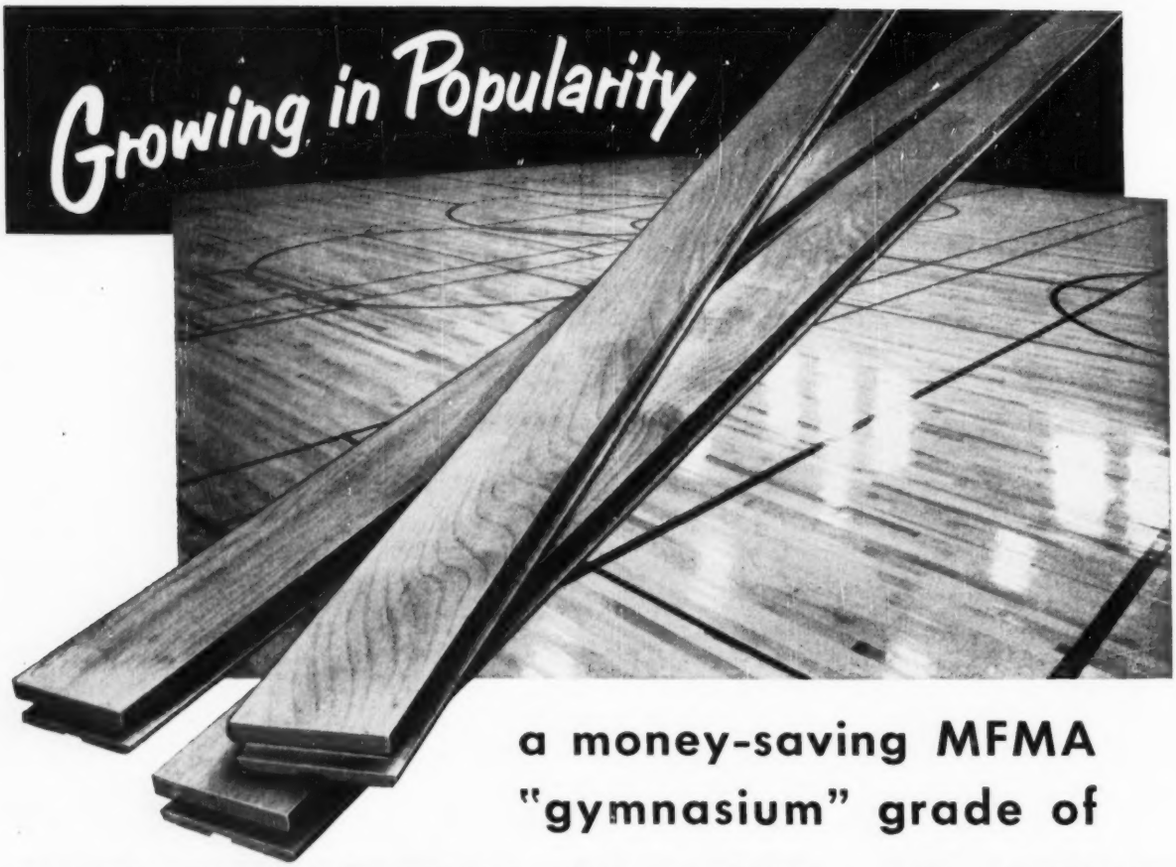

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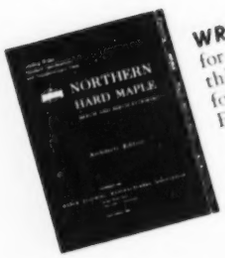

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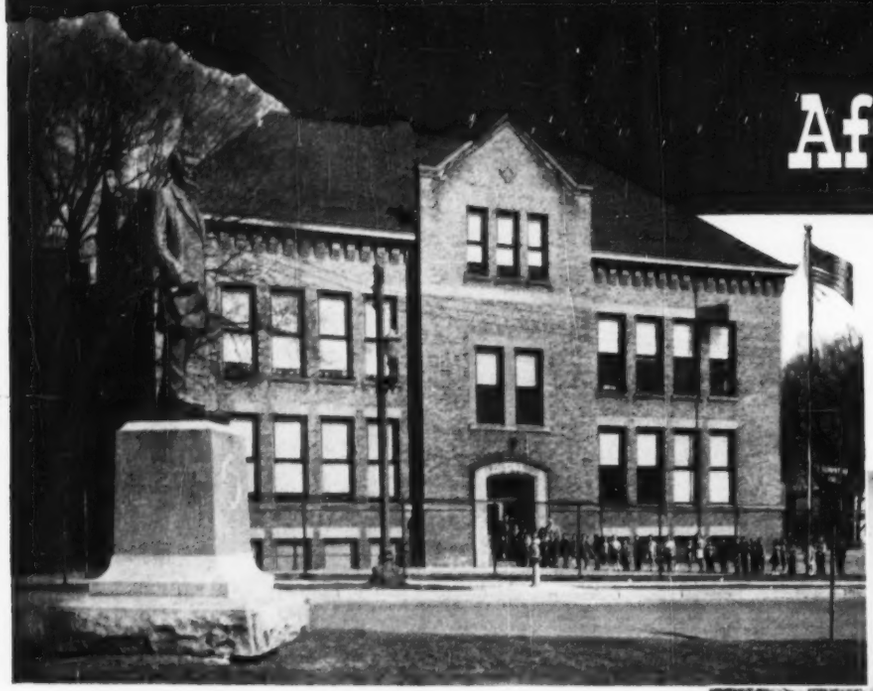

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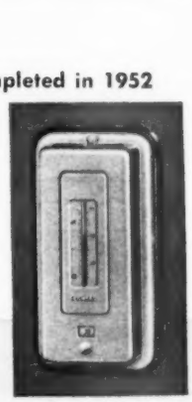
Above: One of a number of old and modern schools in RACINE equipped with Powers Control.

Below: RACINE'S New JERSTAD-AGERHOLM SCHOOL Completed in 1952 is also Powers controlled. Only a portion of the building appears in the photo. It has 14 classrooms, an administration and community center, playroom and kitchen, and audio-visual room. It is attractive inside and out—heating and ventilation are maintained with utmost economy.



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this test shows POWERS

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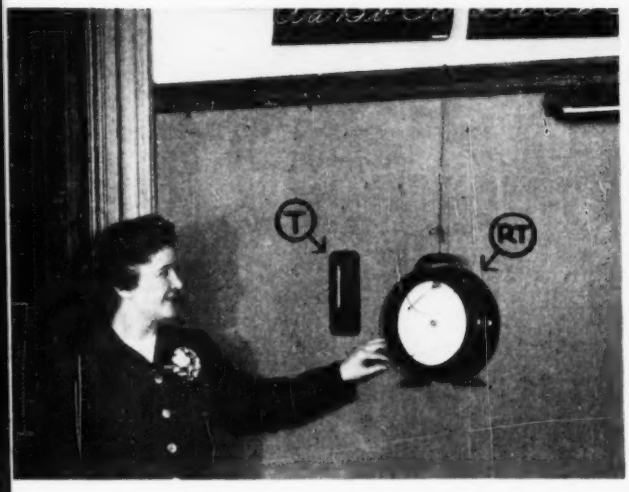

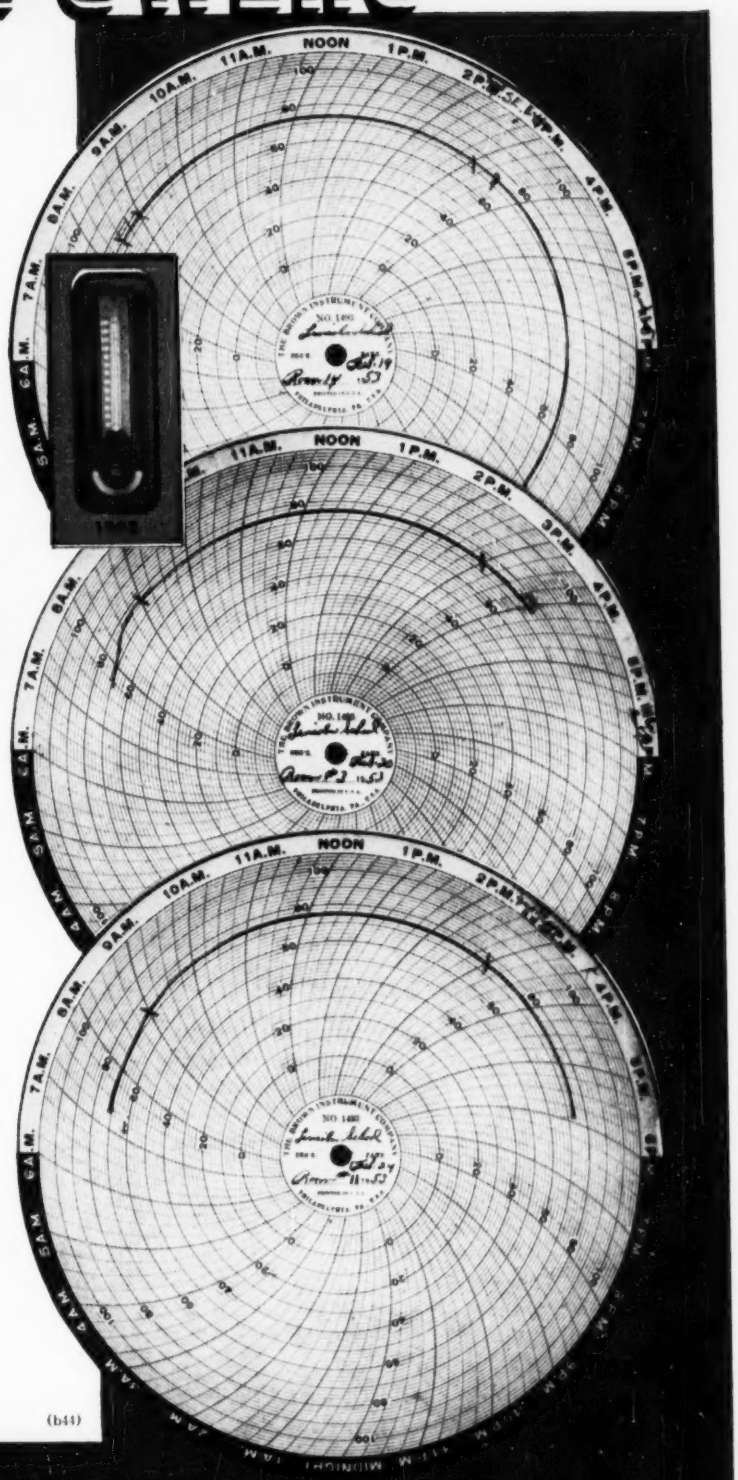

Miss K. Mart, Teacher in Room 14 Lincoln School, Racine, Wis. "T" is POWERS *Type A* Thermostat installed in 1903. It controls mixing dampers. Thermostat was set for 75° F. Note even control during schools hours. "RT" is Recording Thermometer which made charts at right in February 1953.

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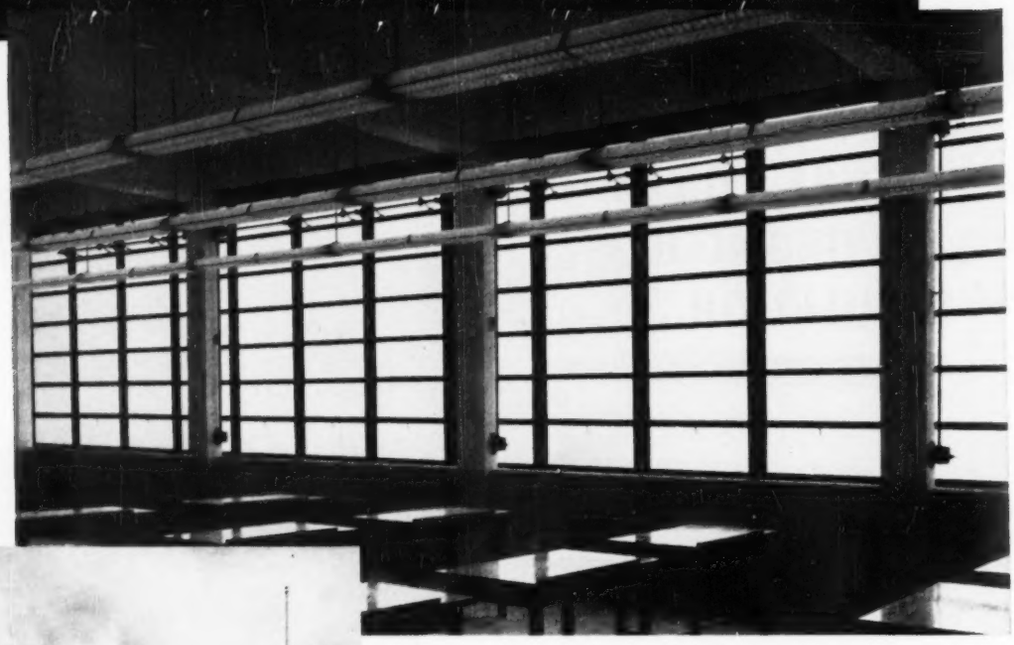
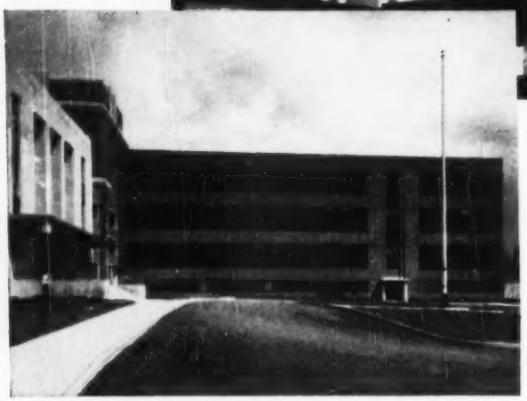


Note how diffusing qualities of Mississippi Coolite, Heat Absorbing and Glare Reducing glass, spread light evenly through room — reduce sharp shadows . . . cut eye-fatiguing glare.



Two types of Mississippi Glass . . . Polished Misco (Wire) and Coolite (Wire), Glare Reduced, are employed in this modern structure. Architects: Taylor & Fischer; Contractor: Joseph F. Hughes; Glazing by Pittsburgh Plate Glass Co.

Areas enjoy high level lighting without heat and glare of "Raw" sunlight

The classrooms in the modern Edison, Barton & Mergenthaler Vocational School, Baltimore, Md. are bright as all outdoors, for the vast expanses of Mississippi Coolite Wire glass, glare reduced, diffuse copious quantities of glare-free, natural light over the entire work area. Coolite also absorbs solar heat rays, helps keep interiors cooler, more comfortable. The walls of daylight help create an atmosphere of friendly spaciousness and the effect created is conducive to concentration and school interest.

In addition to Coolite, clear Polished Misco is effectively used. The almost inconspicuous diamond webbing of Polished Misco gives it the ability to remain in the opening even after cracking or accidental breakage. Thus it helps bottle up and control any fire or lab explosion. A truly modern glass that combines extreme beauty with extreme utility and safety, it is ideally suited for school use.

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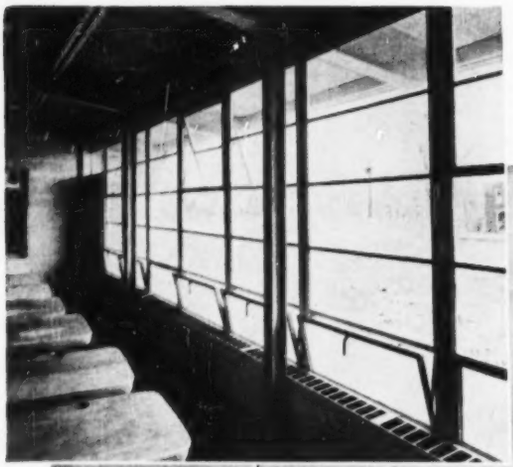
FOR CLASSROOMS that are beautiful as well as functional, the Consolidated Junior High School in Gardner, Massachusetts, has chosen Heywood-Wakefield Tubular Steel School Furniture. Blending perfectly with the modern decor, this versatile furniture adapts itself readily to the varied classroom projects and conditions.

The Consolidated School was planned and built under the supervision of Superintendent of Schools Frank C. Chace and the Gardner School Board. Installation of Heywood-Wakefield furniture was arranged by Gledhill Brothers, Distributors, Boston. For further information about Heywood-Wakefield Tubular Steel School Furniture, write for your copy of the fully illustrated catalogue. Heywood-Wakefield—School Furniture Division—Menominee, Michigan —Gardner, Massachusetts.

Table Desks are style S 1039 OF with All Purpose Chairs, S 915. For added beauty and durability, all tubular steel parts have extra heavy chrome plate.

One of the attractive Teachers' Lounges furnished with Heywood-Wakefield Modern. Heywood's extensive line of household furniture offers home comfort and styling for such specialized rooms.



St. Andrews Parochial School, Newtown, Pa. Architects: Haag & d'Entremont, Jenkintown, Pa. Contractors: Tichenor Bros., Newtown, Pa. This four-classroom building is the first unit. Future plans call for an identical wing connected by a multi-purpose room that will serve as auditorium and cafeteria.

One of many — with Lupton Metal Windows

Schools in bustling Bucks County, Pa., are being built as fast as possible, and they are often overcrowded as soon as finished.

Ground for St. Andrews was broken in August '52. It opened its doors in January '53. Construction speed was needed, doubled pupil enrollment was bursting the old two-room building at the seams . . . And 126 Architectural Projected Lupton Steel Windows helped speed that construction. They make the entire wall on one side of each classroom.

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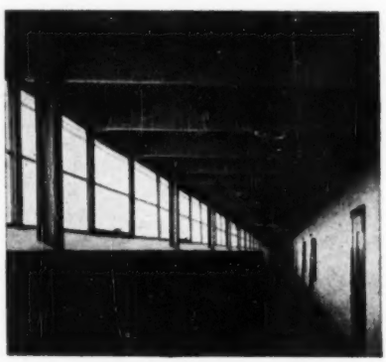

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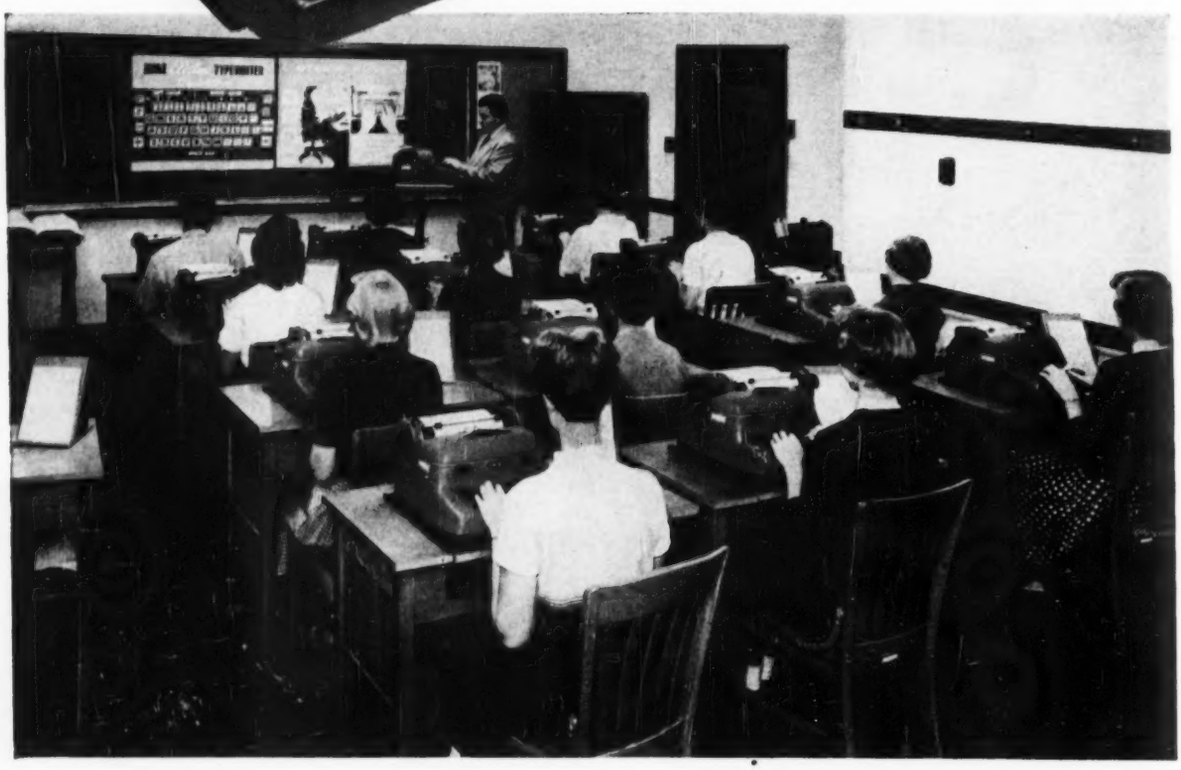

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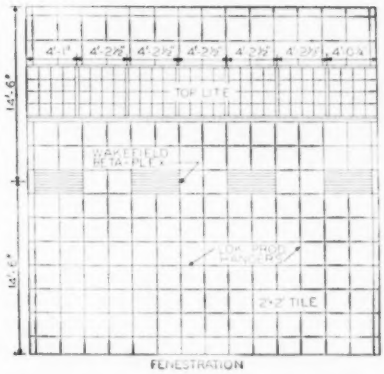
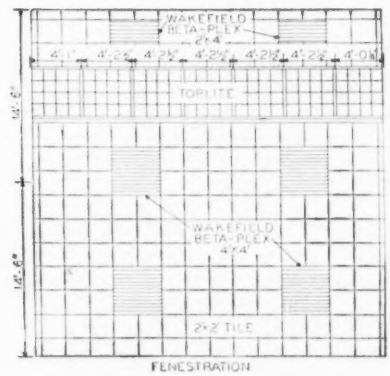
How to supplement glass block skylighting by using Wakefield Beta-Plex units



For daytime only: *four 2′ x 4′ Beta-Plex recessed units are mounted on the ceiling almost in the center of the room. The arrangement of side wall and glass block skylighting shown here will put the low point of daylight directly under the Beta-Plex units.*

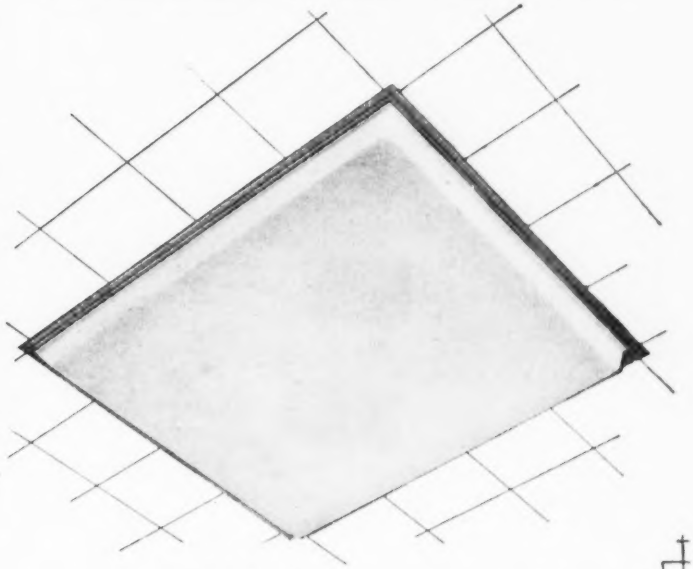


For Day and Night Use: *a minimum of 30 ft-C of electric light to meet the requirements of American Standard Practice will be provided by this arrangement of two 2′ x 4′ and four 4′ x 4′ Beta-Plex units. Separate circuits and switches will permit full (night) or partial (day) use.*

Wakefield Beta-Plex is a complete unit ready for recess mounting in a suspended ceiling. Separate circuits and switches may be installed for different lighting levels. The ballasts and lamp-holders are contained in an individual metal housing that provides for hook-on suspension points for the Wakefield Rigid-Arch Diffuser.

The Rigid-Arch Diffuser is molded with a sweeping arch, slightly higher in the center than at the edges to give greatly improved rigidity. It has a non-specular, matt finish that minimizes possible reflected glare from outside the building. Beta-Plex is also available with louvers. The Touch-Latch makes the interior of the luminaire readily available; press up with the touch rod —the Touch-Latch releases and the Rigid-Arch Diffuser swings down and open. Press the diffuser up again—the Touch-Latch secures the panel in place. Available in 2′ x 2′, 2′ x 4′, 1′ x 4′ and 4′ x 4′ units.

For an illustrated, descriptive 8-page folder on Beta-Plex, write to The F. W. Wakefield Brass Company, Vermilion, Ohio. In Canada: Wakefield Lighting Limited, London, Ontario.



Beta-Plex is one of a series of Wakefield Geometrics. Others are Omega-Plex, Theta-Plex and Sigma-Plex. Folders describing each are available.

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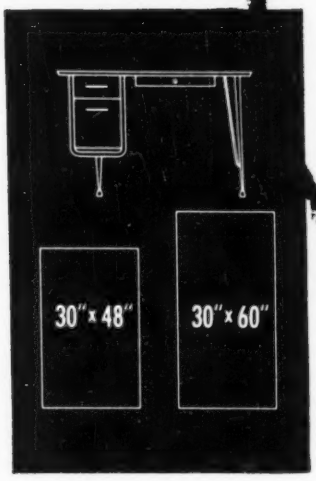

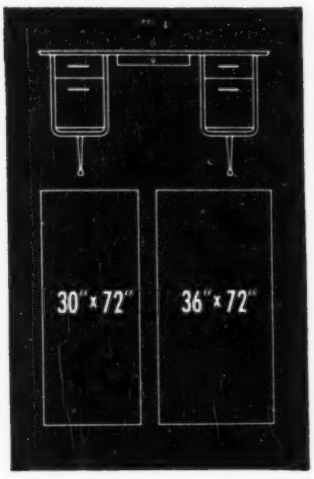

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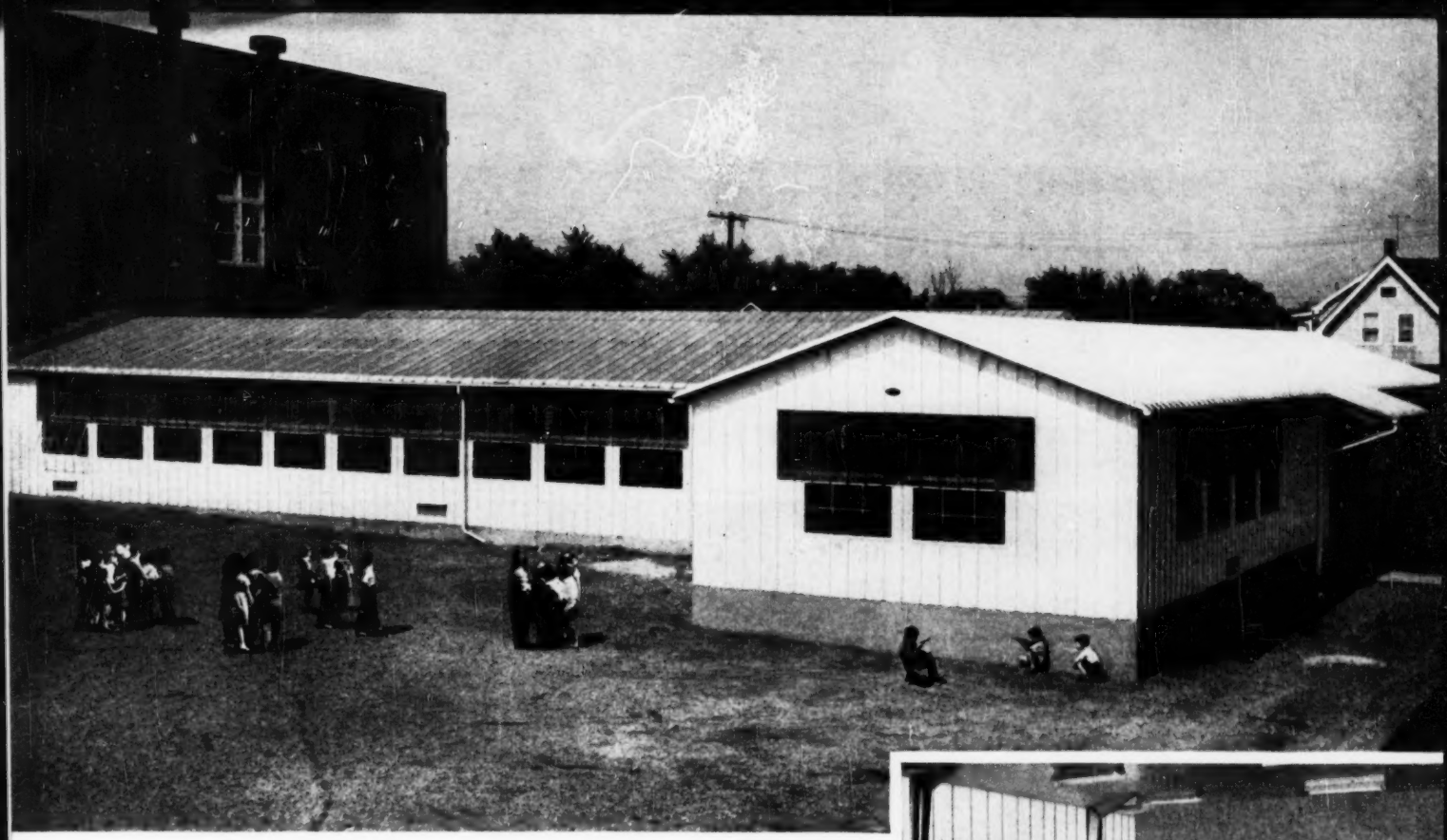

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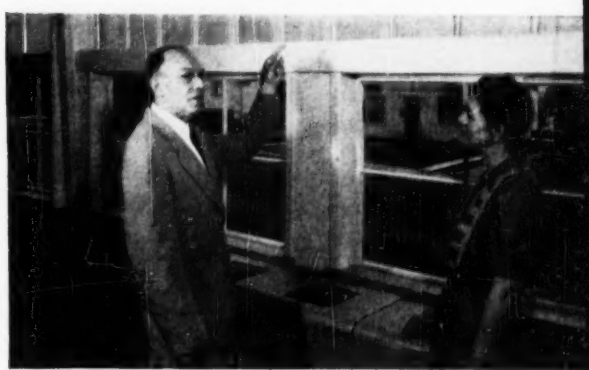

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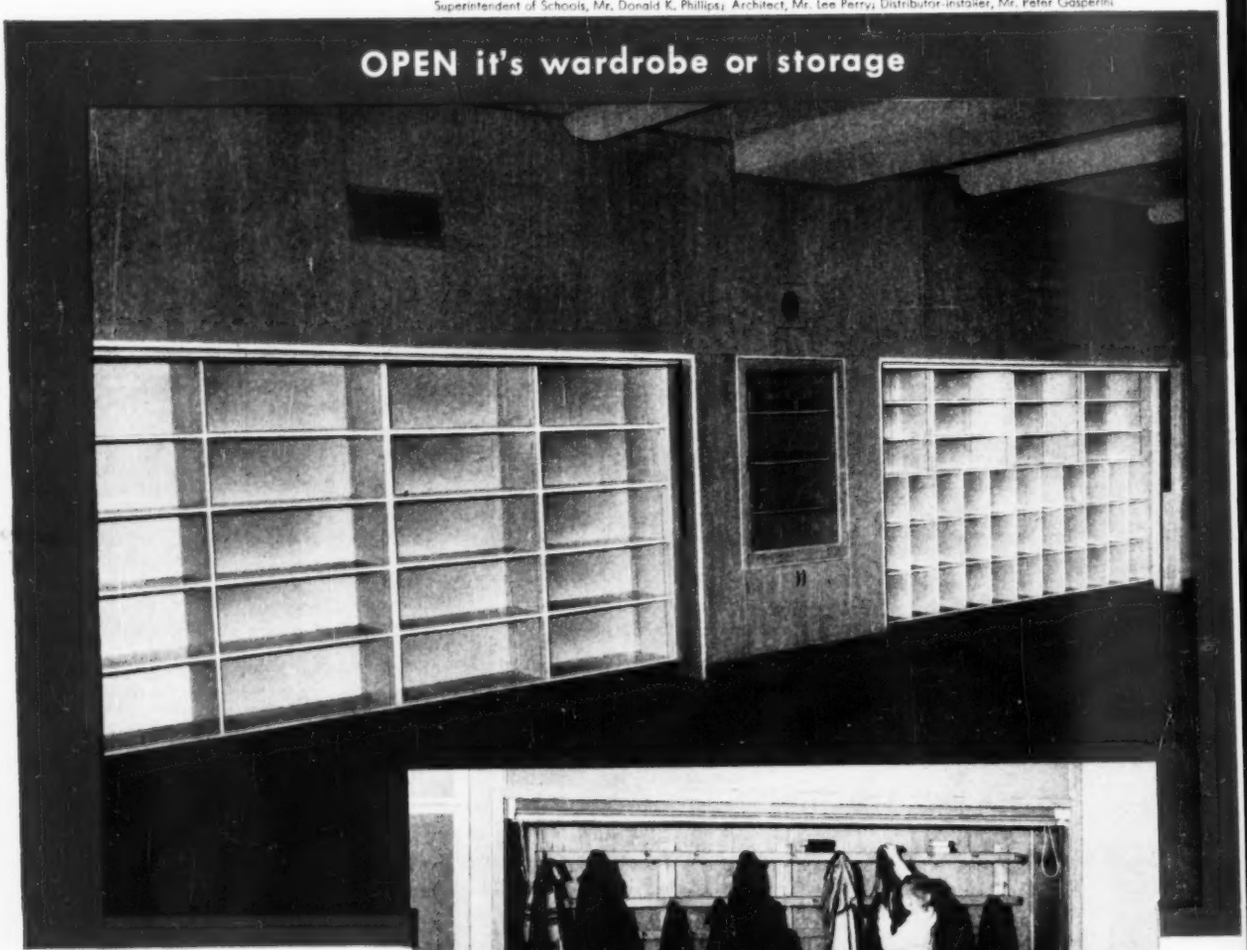
saves space, cuts costs in New Rochelle school

Superintendent of Schools, Mr. Donald K. Phillips; Architect, Mr. Lee Perry; Distributor-installer, Mr. Peter Gasperini



HENRY BARNARD SCHOOL *addition (above) at New Rochelle, N. Y. illustrates unusual flexibility of Barcol WARDROBE-doors when used with specially designed cubicles and storage shelves. Note how every inch of space is fully utilized. Continuous shelving and hooks (right) are standard equipment included in basic price—around $500 in most areas.*

ARCHITECT LEE PERRY, New Rochelle, N. Y., reports that in designing the Henry Barnard School addition, it was necessary not only to conserve space but also to *get the most use* out of the area available.

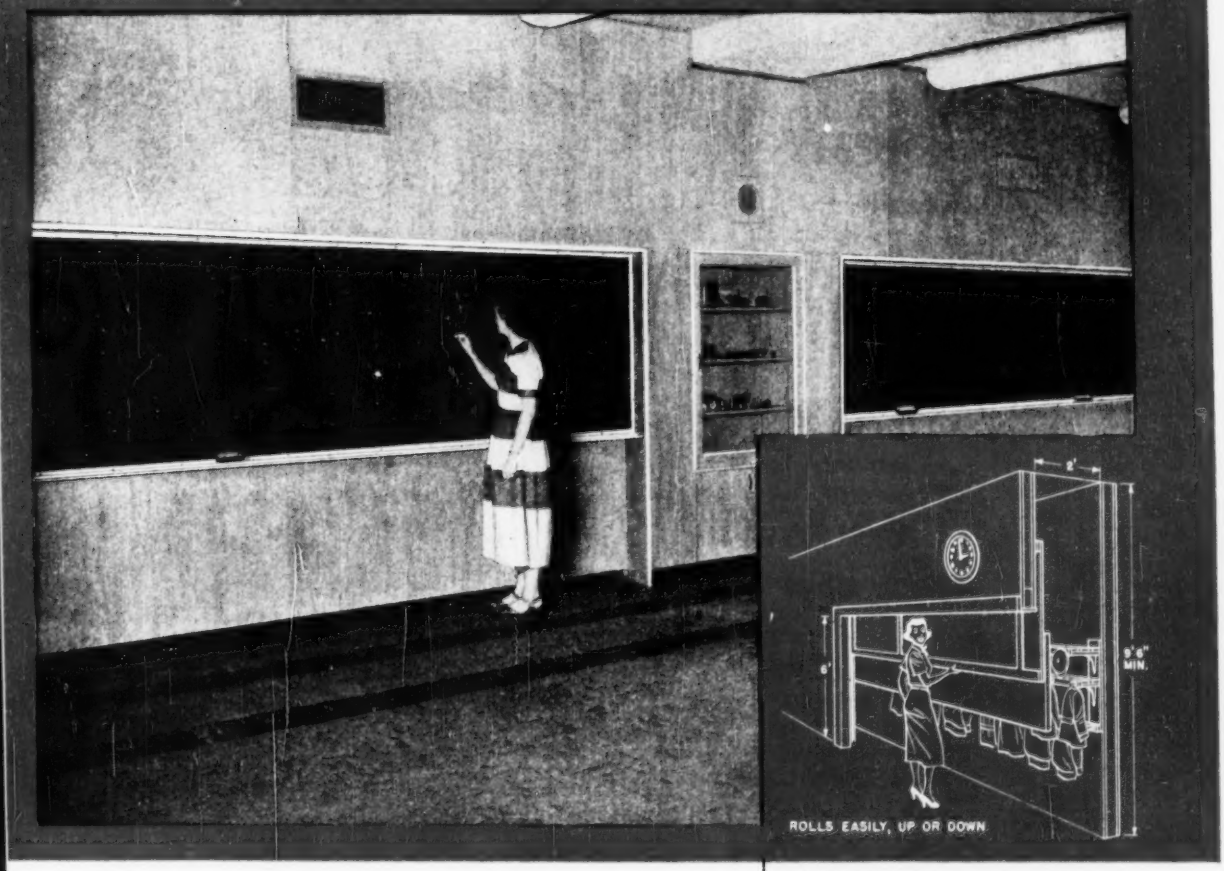
"After giving due consideration to alternatives," writes Mr. Perry, "we decided to use Barcol WARDROBEdoors so that all the space allocated for wardrobes was useful without being cluttered up by doors swinging in or out. The installation has been very satisfactory, and I recommend them for any school or institution."

School officials and school architects everywhere are finding that Barcol WARDROBEdoors effectively save up to 15 square feet per room while providing more working wall space for chalkboard or tackboard. Full-view opening eliminates "mischief areas," and cleaning is easier because floor is completely clear of hardware or fittings.

Barcol WARDROBEdoor dimensions are 10′ or 12′ wide and 6′ high, requiring only 9′6″ ceilings (3′6″ above opening). Depth can be as little as 24″.

Eleven Barcol WARDROBEdoors were used in the Henry Barnard School . . . other installations have used as many as 16, 20, or even 24. Most are installed in classrooms, but some use hallway space. Ask your architect for full information or send coupon today.

CLOSED it's chalkboard or tackboard



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THE AMERICAN
School Board Journal
A Periodical of School Administration

JANUARY 1954

An Assessment —

Causes of Our Schoolhousing Shortages

W. A. Stumpf *

Several years of feverish construction have brought some alleviation of our schoolhousing shortages; nevertheless, in September, 1953, thousands of pupils were still in overcrowded classrooms, in obsolete buildings that too often were firetraps, and in facilities which were otherwise inadequate even by minimum standards.

How did we get into such a situation? The root of the matter lies in a combination of causes no one of which is solely responsible. Some of the underlying factors seem obvious; others involve circumstances that are less clear but none the less potent; still others have been only casually considered. These factors include: (1) increases in the number to be served, (2) backlogs of need that have never been fully liquidated, (3) financial difficulties, and (4) contributory causes that in some instances are nationwide in scope and in other circumstances are more or less localized.

Population, Enrollments, Attendance

Population growth, especially among school-age children, has been, of course, the most obvious and perhaps the most disturbing immediate factor. Our country has had a long, uninterrupted growth, including a population increase of 64 per cent between 1910 and 1950 alone. Even during the depression of the 1930's more than 9 million persons were added to our population.

The number of live births has been a well-known and an exceedingly important fact. From 1921 through 1933 there was an almost uninterrupted decrease — from 3,055,000 to 2,307,000, respectively. But beginning in 1934 and accelerated from 1941 to the present, the number of live births has consistently increased, reaching 3,833,000 in 1951, with estimates for 1952 indicating an apparent new record. Since 1946 at least 3,400,000 children have been born annually.

Though nationwide enrollments in public schools between 1940 and 1950 showed a decrease of about 300,000 pupils, an increase of approximately 760,000 in nonpublic school enrollments more than offset it. It should be noted, however, that the sharp increase in nonpublic enrollments came after 1943–44.

Enrollments may rise or fall, but the attendance habits of public school children show consistent improvement. The average daily attendance in 1950 was 22,288,985, or 88.8 per cent of the enrollment — the highest number attending and the highest reported percentage of average daily attendance in our history. More children were in school more days than ever before.

Although long-range predictions of population and even of enrollments involve some hazard, it is sensible to expect an increasing population for some years to come, and increases in school enrollments must be anticipated at least until 1960 and beyond. By 1955 the forward edge of the wave will reach the high schools, and before 1960 the increased enrollments should be felt in colleges and universities.

The Backlog

Important as population, enrollment, and attendance factors are, they tell but a part of the story. The past half century particularly has witnessed a constantly accumulating, never fully liquidated backlog or lag in school construction. Yet until the nationwide School Facilities Survey of the Office of Education was undertaken, we had only partial estimates and a few fairly intelligent guesses about the total of the schoolhousing shortages.

The 1920's brought considerable relief, especially in the way of new facilities for secondary schools. The depression, however, interfered to slow down construction and even to bring preservation maintenance almost to a standstill. Despite decreasing enrollments, buildings became obsolete, and there simply was not enough money available for new construction although the Federal Government provided a considerable amount of financial and other aid as part of its work-relief program.

Depression expenditures seem almost lavish, however, when contrasted to those of the early forties. From 1929 through 1939, 10 cents of the school dollar went for capital outlay compared to 5 cents between 1939 and 1946. During the early forties finding money was less a problem than finding materials. Shortages of labor and materials accelerated depreciation of buildings, normal maintenance programs could not be maintained, and replacements

*Department of Education, Duke University, Durham, N. C.

could not be made however urgent they were. Some buildings reached the state in which rehabilitation was impossible, yet the facilities had to be used for want of the ability to provide anything better.

The factor of obsolescence has been and still is a potent cause of the backlog in construction. Many children, especially in the elementary schools, are forced to attend schools which have outlived their effectiveness and safety as educational tools. Structures more than 30 years old ordinarily are entering the final stages of their usability; those more than 50 years old are generally in their dotage as schoolhouses. As late as 1948 a large group of cities reported that 3 per cent of their enrollments were housed in condemned buildings, and an estimated one fifth of the elementary schools in 1951 were more than 50 years old. The added factor of obsolescence due to inflexibility and unsuitability for a modern educational program, regardless of the actual age of a building, is virtually as serious a handicap as obsolescence due to deterioration.

Although much building has been done in the past three years, the level of construction in terms of 1951 dollars did not reach or exceed that of the twenties until 1950. A conservative estimate of present needs is that more than 200,000, perhaps 250,000 classrooms are still necessary. The recent construction has just begun to liquidate the backlog.

Financial Difficulties

Much of the backlog stems from the inability of many local districts, even in "good times," to raise the necessary money for new facilities. Some districts are sufficiently wealthy to provide the necessary money under present laws and practices; some districts have exerted themselves to a point well beyond their safe financial abilities. Some districts, for reasons good or bad, lack wealth enough to raise sufficient money for school construction regardless of how carefully they plan. If, in addition to lack of wealth the tax structure is inappropriate, or if taxing practices involve semistatic valuation methods, referendum requirements that make passing a bond issue difficult, or inflexible limitations on bonding power, the financial factor becomes increasingly complex, and solving the problem locally may in many instances be well-nigh impossible.

Some form of central aid that can be brought within the reach of struggling districts seems inevitably necessary. Several states have passed large bond issues and made the proceeds available to local districts, some have established minimum financial foundation programs which regularly allot sums for capital outlay, and some have resorted to the possibly dubious device of establishing "School Building Authorities" whose practical purpose is to hurdle legal obstacles of various sorts. There seems to have been some inclination toward a bipartisan effort on the part of the Federal Government to assist the states, but at present this seems dormant.

From the standpoint of common-sense finance, it would seem that we should build schools when money is cheap, when labor and materials are less expensive. Citizens, however, are not inclined to vote bonds or taxes during such time. Thus our pattern seems to be to build in good times because additional taxes are then acceptable. By doing so, however, we get the least for the money we raise. Drastic changes may be needed in the planning done by school administrators and in obtaining laws designed to facilitate prudent financing.

Population Migration

Among the factors which are less than nationwide in immediate effect is the unprecedented migration from state to state, country to city, and from the city back to suburban and fringe areas which has taken place in the past ten or twelve years. The farm population, to cite one example, decreased by more than three million persons between 1940 and 1947. Referring to the population movement between 1940 and 1947, the Bureau of the Census stated that "probably never before in the history of the United States has there been internal population movement of such magnitude as in the past seven eventful years."

Children of parents moving into a locality for whatever the reason may play havoc with the classroom loads almost overnight. The partially filled rooms these children have left behind them are no help to the harassed superintendent or principal trying to find space for them in their new school. Such data as these do not stand out in the statistics but are, nevertheless, important. Young adults and young children are the most mobile groups, and space needs in the elementary schools especially are still acute.

This mobility is by no means uniform. A few examples will illustrate. Census data show that from 1940 to 1950, two counties in Alabama experienced more than 80 per cent of the total population increase of that state. In California one county reported an increase exceeding one million persons, more than one third of the total increase of the state during that period. The unpredictability of migrations makes reliance on advance forecasts of schoolhousing needs extremely difficult.

District Reorganization

School districts have decreased in number from about 119,000 in 1938, according to McIntyre's study, to approximately 73,000 in 1951. With district reorganization has often come the abandonment of uneconomical elementary and secondary schools. Although the buildings may still be usable, they do not meet the educational needs, especially in the case of secondary schools. Replacements in the form of new structures are designed to house more pupils and to provide a more nearly adequate program, and they are more economical to operate than the former schools. A vivid example is the decrease of nearly 130,000 one-teacher districts or schools from 1919 to 1950.

Provision for school transportation often accompanies the reorganization of schools and school districts. Buses require at least a repair shop, facilities for the storage of gasoline and supplies. In some instances garaging may be considered necessary during the summer and perhaps even throughout the year. Funds are necessary not only to purchase the equipment but either to pay for shelters or for the increased maintenance resulting from exposure to the weather. In rural areas with large bus fleets the repair shop alone is a sizable item of capital expenditure.

Changes in Instructional Methods

With instructional methods changing in the direction of more pupil participation and activity, the space needs for classrooms have grown to the extent that floor areas per pupil have almost doubled during the past decade or more. The former "standard" 22 by 30-ft. classroom, considered ample some years ago, is gradually being replaced by rooms of not less than 900 square feet floor area, and having a variety of shapes.

The addition of facilities for art, music, physical education, laboratories, shops, audio-visual equipment, and the like have, with the increased floor areas, increased substantially the cost of even minimum construction and equipment. In some instances administrators have been forced to decide whether their finances should be used for the construction of fewer but larger rooms, or whether they should accept floor plans and equipment which would be admittedly inadequate for a forward-looking instructional program.

Extension of School Program

From 1940 to 1950 enrollments in public kindergartens nearly doubled, growing from about 600,000 children to more than one million. At the other end of the ladder has been the growing demand to extend educational programs to include work in the thirteenth and fourteenth years. About 580,000 students were enrolled in junior colleges in 1951, with more than 86 per cent of this enrollment in public junior and community colleges. The effects on space needs are obvious.

Evening classes, part-time trade, and other increased educational opportunities for out-of-school youth and adults have substantially increased the needs for post-high school community education.

Racial Problems

A factor that has been given little attention in the educational press, but which is of large importance in the South particularly, is the provision for adequate facilities for minority racial groups, especially the Negro children. The trend of the past several years to enforce equal educational opportunities for all has posed a pressing school-construction problem. The school buildings for Negroes and other segregated groups have not been and, as a whole, still are not providing reasonably modern and up-to-date facilities equal to those for the white children.

Philanthropy has long since ceased to be a source of school-construction funds for minority groups in the Southern states. As a result, if a dual or triple system of segregation is desired, not only will improvement have to be made very rapidly to conform to the court decisions, but additional funds will be required to pay for the schoolhousing needs of all of the racial groups, including the whites. Parenthetically, it may be mentioned that in some localities the improvement in the school plants for minority groups has been more rapid than in others and has taken more of the available funds than those allotted for the schools of the majority race.

In Conclusion —

The factors which underlie the present schoolhousing shortages are complex, interwoven, and still pressing. As enrollments increase, the pressure is likely to last for several more years even with the accelerated building programs now in progress throughout the country. Some schools which were planned to take care of increases beyond what seemed to be immediate needs are already crowded. When liquidation of the backlog, antiquated financial plans, program modernization and extension, reorganization, and racial problems are considered, it seems clear that comprehensive nationwide, statewide, and local planning on a long-range basis is not only an absolute present imperative but must also be a continuing activity of school boards and administrators as well as communities. The schoolhousing problem provides a challenge for 1954.

The Educational Basis for —

Planning a Functional Self-contained Classroom

*Harry W. Stone**

The primary requisite of successful education is an efficient, contented, happy teacher. A happy teacher is one who feels effective. His effectiveness is increased by cheerful surroundings which embrace a classroom and equipment suited to the educational objectives. Building and classrooms should be planned so that the desired program can be taught effectively. The teacher's attitudes and emotions are reflected in the attitudes and emotions of the pupils. The elementary school principal can help to employ desirable classrooms by securing the co-operation of teachers, pupils, citizens, school administrators, and architects in determining the needs of both teachers and pupils. As a result of such co-operation, the architect should be given a definite program, preferably in detailed written form — the words adequate, ample, and sufficient are too subjective to be meaningful.

Because of individual differences, classes are not taught as homogeneous units. There is too little time and there are too many children to teach the average class as individuals. Limitations require teaching by groups according to pupils' needs and abilities. The teacher's time must be saved so he can deal with problems effectively. The following quotation is an excellent description of a modern objective and significant appraisal of effective teaching.[1]

Some school activities allow children to be their healthy selves more fully than others: the arts; play with blocks and sand and dolls and puppets; simple spontaneous dramatic play; good vigorous out-of-door life at school; committee work where children do the talking and deciding; active work where all youngsters can feel big through contributing, each *in his own way*.

This kind of creative, busy, happy working — plus your good-natured, not-harsh, not-blaming, friendly way — is not just a boon to children. It is a boon to our country. It allows more and more youngsters to grow with peace inside of them. It is good education and a good ground work for decent human relations.

However, before considering in detail the specific room needs, we should consider the educational determinants of these classroom needs. Let us assume that the aim is to provide developmental experiences: *first*, by direct participation; *second*, by observation, and *third*, vicariously. Such an order of experiential effectiveness has a sound basis in fact. Carry-over value requires practice and calls for thinking. Pupils learn to think by being presented with a meaningful problem, by planning, by execution, and by evaluating their efforts. The experiences proposed will, of course, be planned and guided ones.

Mental retention through the threshold of recall or recognition is not the goal. Significance to the pupil and practice by firsthand participation are essential to the attainment of carry-over values. Vicarious experiences alone are not enough. A challenging basis for participation and observation is essential to building concepts and symbols standing for the concepts. In direct participation pupils learn to get along with people and to get along with themselves.

Let us illustrate the need for building on direct experience in the emotional, social, and moral fields. Here is a graphic representation of a concrete object:

O

A concept of this object depends upon cruciality, frequency, recency, and the similarity to the situation in which previous learnings have been experienced. The object can be interpreted equally as a circle, wheel, orange, coin, sun, moon, ball, balloon, *etc.* It is true that in some cases the specific word symbol can be more readily interpreted, but prior experience and concepts are essential. The understanding of abstract values involving attitudes, emotions, and social activities is more difficult than those which have concrete reality. Experience is essential for retention and use in life situations. Direct experience and practice give meaning and value to learning.

In the light of these educational determinants, let us now take up the specific needs for a modern functional self-contained classroom. Space is the first and most important need of the modern classroom. Movable furniture requires more space than does regimented class seating. Group teaching requires space for participation in activities and for group segregation. Since the teacher is planning and guiding experiences by groups, immediate ac-

*Chief, School Plant Division, Department of Public Instruction, Harrisburg, Pa.

[1]Hymes, James L., *Teacher Listen — The Children Speak*

cessibility to materials and equipment is essential for a continuous and effective teaching program. The number and variety of needs for storage are astonishing. Storage space is vital.

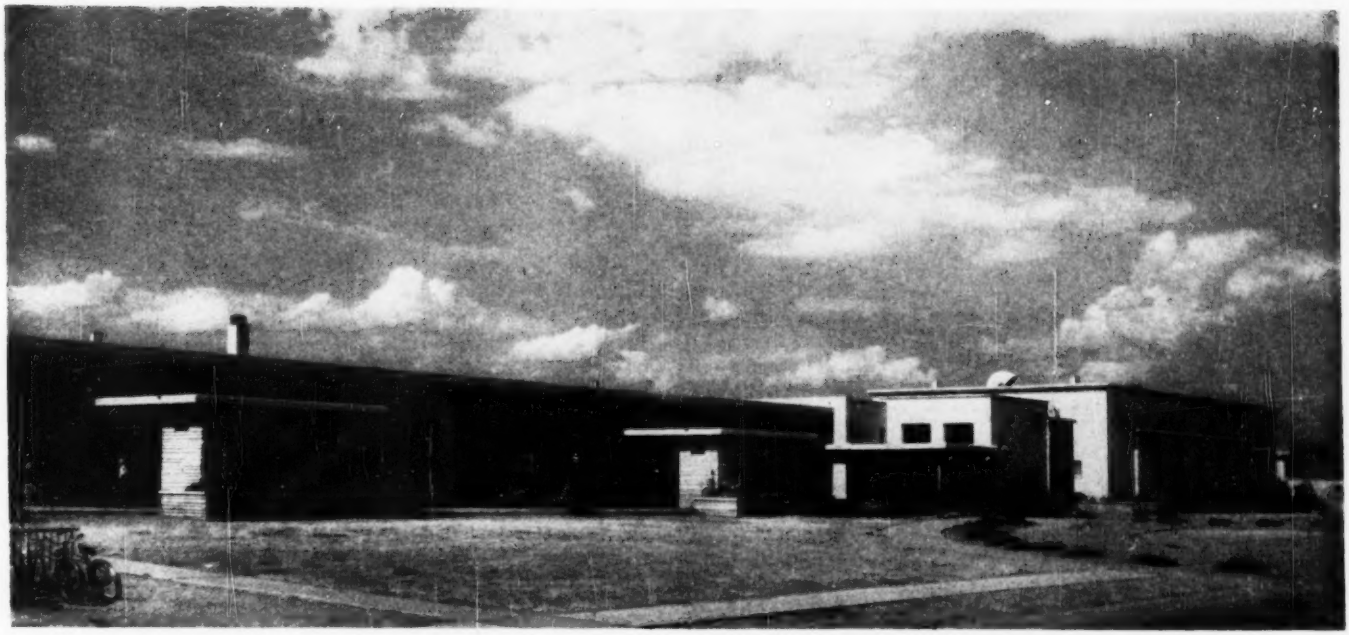
A classroom space of approximately 1000 square feet, exclusive of storage, is not excessive.[2] Even though the educational program cannot be immediately realized, space should be provided for the classroom activities which will be developed. Space should also be allowed for the future installation of storage needs even if cabinets must be omitted when the building is constructed. The structure will have a life of fifty years. Once it is built it is difficult to change, whereas teachers can learn innovative teaching practices through in-service training in a few years. Unless both space for teachers and space for the tools of instruction are provided when the building is constructed, the educational program is bound to suffer.

The following check list of classroom facilities indicates some of the many facets of the classroom and equipment program which require consideration and decision.

1. Size of classroom.
2. Area assigned to storage.
3. Project alcoves versus free space.
4. Shape of classroom.
5. Teacher's coat closet or wardrobe.
6. A stage curtain which can be drawn on a ceiling track across the room, 6 or 7 feet from the front wall, for dramatization and picture projections.
7. Two file cases, one for teacher's records and instructional material and the second for pupils' collected source material.
8. A display case at pupil level, visible from the hall and opening into the classroom, with storage space underneath and above. Access to case from room only.
9. Wardrobes at pupil level, not more than 5 feet high in the upper grades, with tackboard on the front, with a pipe for hanging wraps on, and a shelf for lunch and books.
10. Storage space, to a height of 8 feet, above the file cases, display cases, and wardrobes.
11. A closet to house three folding tables (2 by 6 ft.), one folding sand and water table (2 by 4 ft.), one folding screen with tackboard surfaces, one 8-ft. ladder, one floor brush.
12. A full-length mirror on the closet door 13 by 45 ft.
13. A sink and workbench approximately 5 feet long at right angles to the inside wall. Under the sink four mobile cabinets — one for clay, plaster of Paris, papier-mâché, *etc.*; a second with saw, hammer, chisel, nails, screw, bolts, *etc.*; a third with pail, mop, sponge, scrub brush; one for fireproof storage of paints and brushes.
14. Over-sink cabinets on wall side for dishes, cutlery, kitchen equipment, hot plate, oven, portable kiln, food, *etc.*
15. A rotary utility storage cabinet in the corner, utilizing space otherwise wasted, for teacher or committee use. Rotating shelves in number as needed, of depth desired, and divided to suit needs.
16. Storage spaces at floor level with doors, 18 to 20 in. high for folding chairs, cots, easels, blocks, *etc.*
17. Individual project bins, 9 by 22 in., of 24-in. depth, without doors. These should start approximately 20 in. from the floor with the bottom of the highest ones not over 4 ft. 6 in.
18. A wheeled cart approximately 16 by 24 in by 4 ft. high for film or filmstrip projector, wire or tape recorder, radio, and record player.
19. Storage for seasonal equipment across the end of the room above the open project storage bins.
20. A magazine or newspaper display rack approximately 4 ft. long, 3½ ft. high with space for library display and, if mobile, the back fitted with tackboard.
21. A mobile bookshelf, with tackboard back, to accommodate 200 books. The lower shelf should be 20 in. from the floor and the top shelf not over 5 ft.
22. A 4 ft. long built-in seat at library center, along windows.
23. A window shelf along the window side of room, at sill height with compartments or shelf space underneath.
24. A window shelf extending from the sill for animal housing, aquarium, and herbarium near door to exterior.
25. An exterior door located two thirds of the way back from front of room rather than at the extreme front or rear or in the middle.
26. Housing for construction blocks and construction materials of the kinds used frequently.
27. A mobile workbench, fitted with vise, to fit under window sill.
28. Space for storage of cots and easels.
29. Two chart cases in front of radiator, 6 in. or 8 in. deep, starting 8 in. from floor to window sill height, 42 in. wide, hinged at bottom with chain stop.
30. Sixteen to 20 linear feet of chalkboard at front of room.
31. A narrow strip approximately 1 in. wide above chalkboard for temporary exhibits.
32. A roll projection screen in case above blackboard.
33. As much tackboard space as possible adjoining chalkboard.
34. Specify height and lower and upper dimension of blackboard and tackboard space.
35. A wet area covered with linoleum or other suitable material, approximately 6 ft. wide and 10 ft. long, near sink.
36. Project work space of linoleum or suitable material, 6 ft. wide, across the front of room for mural projects.
37. Toilet room with fixtures of proper size in connection with classrooms, subject, however, to provision of auxiliary fixtures elsewhere. Possibly for kindergarten and first grade only.
38. Type of heating and ventilating.
39. Orientation of the classroom; south is preferable.
40. Exterior louvered shades or hoods to exclude sun and cut down sky glare.
41. Clear glass or directional glass block with vision strip.
42. Sloping ceilings.
43. Sill height.
44. Upper glass line should be at ceiling.
45. Glass from front to rear. Piers should be omitted in glass area.
46. Size, location, and character of entrance door. Location of knob at child's level. Swing door out on front jamb.
47. Solid or glazed door. If glazed, size and location of lights.
48. Kind and color of paint on ceiling and walls and amount of drop ceiling.
49. Amount and kind and color of tackboard and mural tack space.
50. Kind and color of floor materials — wood, linoleum, linotile, asphalt tile, plastic, *etc.* Floor pattern and border.
51. Kind of outer wall and interior window sills, wood, slate, glass, maple, tile, brick, *etc.*
52. Recessed picture molding.
53. Adaption of wardrobes and other equipment to adult evening use.
54. Level of illumination in classrooms, number and kind of illumination fixtures, the location of switches and pattern of fixture control from switches.
55. Number and location of duplex electrical receptacles.
56. Kind and location of clock and public-address speaker.
57. Kind and color of chalkboard.
58. Kind and color of classroom furniture.
59. Location of interest and work centers and their relationship to each other and other features of the classroom.
60. Clerestory lighting.
61. Bilateral lighting.
62. Acoustic treatment.
63. Ceiling height if not determined by law.
64. Storage for costumes, specimens, samples, models, projects.
65. Portable chalkboards and screens.
66. Venetian shades.
67. Roller shades, color, operation.
68. Draw curtains.
69. Sinks and workspaces along wall, as projecting peninsulas or as islands.
70. Drinking fountain — kind, location.

All available sources of information should be utilized. New buildings should be inspected and features discussed with teachers who use the facilities and with the school principals. What not to do is also a factor in planning. The principal should confer with the educational departments of universities and with the elementary and school plant divisions of his state education department. Information identified as subjective should be evaluated carefully. Abundant plans and periodical literature are available, but dependence upon them should not lead to the perpetuation of the mistakes of others. Many of the published plans are valuable; while others are worse than worthless. What is satisfactory in one community may not be suitable for the needs of another community. It is important that the principal have a well-defined educational program; it will establish criteria for his own as well as the architect's use.

[2]See the following: Caudill, William Wayne, *Space for Teaching*, Bulletin of the Agricultural and Mechanical College of Texas, College Station, Tex., Aug., 1941. National Council of State Consultants in Elementary Education (Committee 6), *Planning for America's Children — Desirable Schoolhousing, Equipment and Supplies*, 1948. Copies may be purchased by addressing Elsa Schneider, P.O. Box 785, Benjamin Franklin Station, Washington 4, D. C. National Council on Schoolhouse Construction, *Guide for Planning School Plants* (1949 edition). Address the Secretary, W. D. McClurkin, Peabody College, Nashville, Tenn. American Association of School Administrators (Twenty-seventh Yearbook), *American School Buildings*, The Association, Washington, D. C., 1949.



Front Exterior, Rancho Village Elementary School, Oklahoma City, Okla. — Bramblet & Baldwin, Architects, Oklahoma City.

Generously Planned —

Rancho Village Elementary School

*N. L. George, Ph.D.**

It is indeed fun for a school administration to secure an adequate-sized school site, properly located in an expanding area of a school district. The Oklahoma City board of education obtained the land for the Rancho Village Elementary School for the same price that the developers had to pay the original owners. Around this 6.5 acre school site, the developers extended the paving. The electric, the sewer, and the water services were extended to the school site at cost.

Then, it is further fun to define the educational program for the school area and plan a complete school for that site.

Following the philosophy that an elementary school should be planned for 500 to 600 pupils, the administration worked out the plans of a complete school building consisting of 14 classrooms for grades one to six, one kindergarten, and an overflow kindergarten-first grade room. To this total of 16 classrooms, the administration and service spaces had to be added. The school building is also used as a community center for adults.

The building is a single-story construction which has these advantages: (1) The playgrounds are readily accessible to each classroom, with a door leading directly from the classroom to the playground. (2) It is safe. (3) It is low in cost. (4) It eliminates stairs.

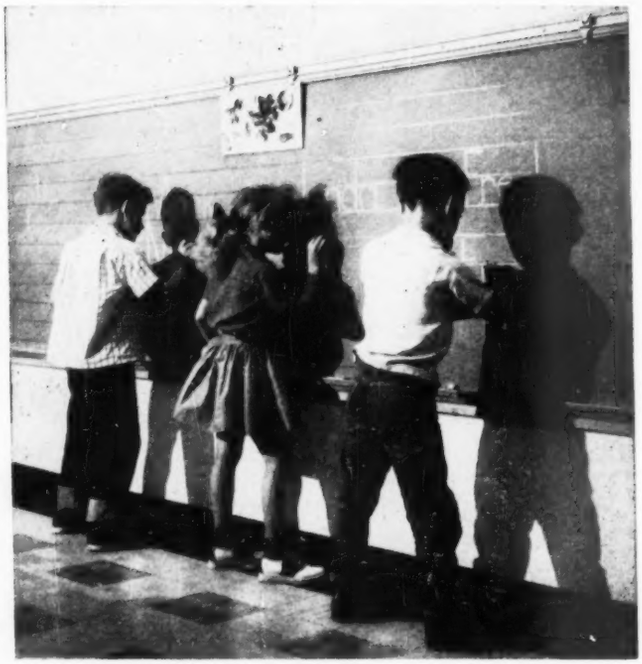
The attractive main entrance of the Rancho Village School

*Assistant Superintendent in Charge of Business, Oklahoma City Public Schools.

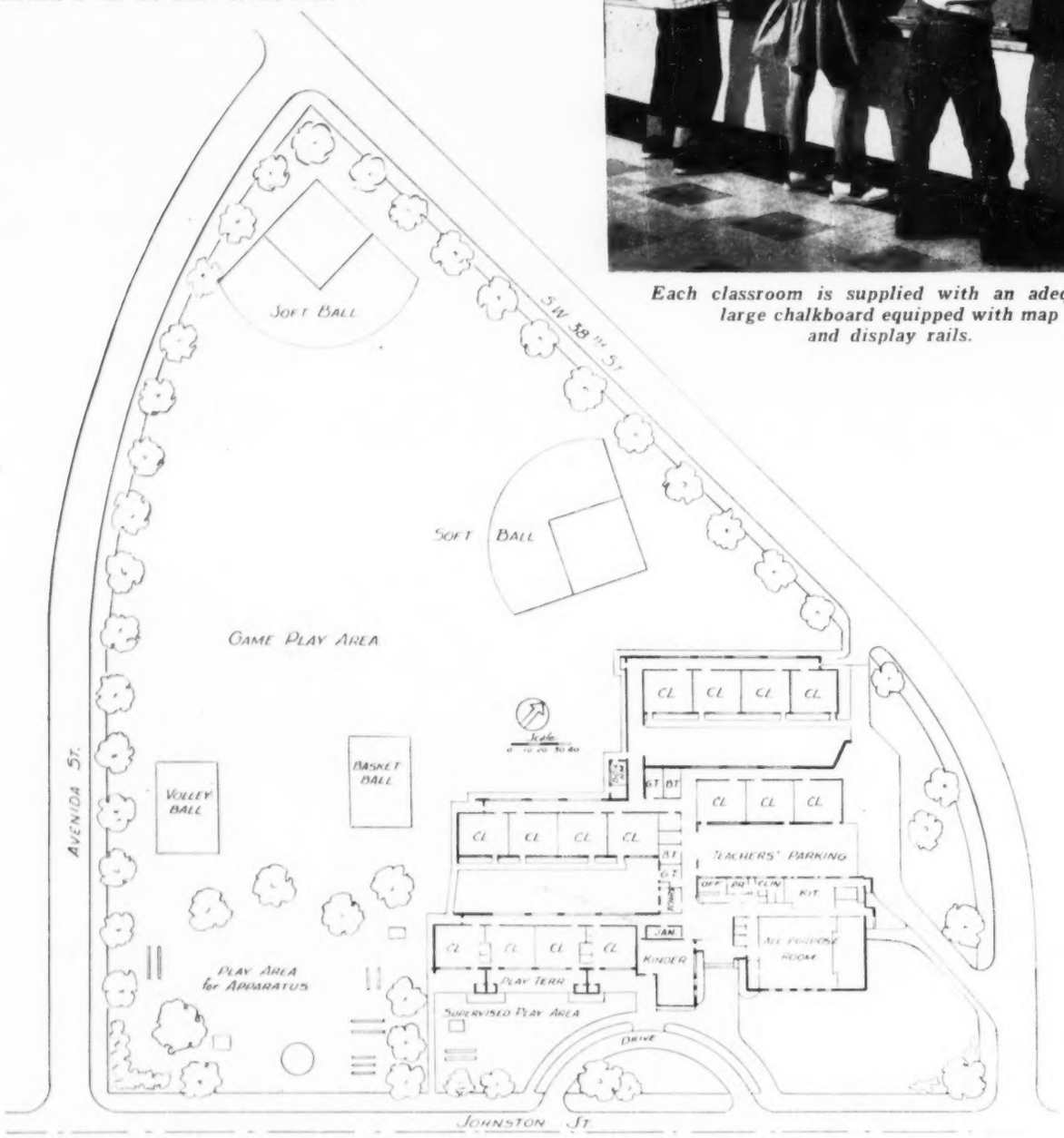
(5) All partitions are constructed so that the building is flexible in arrangement and use. (6) The structure is easily expanded if necessary at ends of the classroom. (7) Bilateral lighting has been used.

The contract included all necessary sidewalks, play terraces with wood benches and tool rooms for primary children, front drive, asphalt parking area for teachers and employees. There also are concrete service walks, a drive and a flagpole. The development of the playground area was not costly because the ground is level, dry, clearly accessible, and bounded by paved streets. A minimum of drainage work has been necessary.

In planning this building and letting the contract, it was the desire of the board of



Each classroom is supplied with an adequately large chalkboard equipped with map and display rails.



Plot Plan, Rancho Village Elementary School, Oklahoma City, Okla. — Bramblet & Baldwin, Architects, Oklahoma City.

Sanitary fixtures, built-ins, storage spaces, and movable furniture in the proper size equip the self-contained classrooms.

education to do a complete job. They were anxious to do this in order to compare the cost with a building where services such as paving, sidewalks, drives, flagpole, etc., were done separately.

The general orientation of the classrooms is southeast and south. The classrooms are grouped according to the age levels, and connected by single-loaded corridors. Each classroom has sanitary fixtures, abundant built-ins, storage spaces, mirrors, and movable furniture which is suitable to the size of the children at the different age levels. There are two doors in each classroom. For each grade level the essential features of the self-contained classroom are provided. Each classroom in grades one to six contains approximately 900 square feet with dimensions of 32 by 27 ft. The kindergarten and overflow kindergarten rooms are united with a folding door and have a combined area of approximately 2100 square feet. A separate drive with shelter is provided for the kindergarten.

The single-loaded corridors are well lighted, equipped with adequate exits and bulletin boards. They contain mud scrapers at entrances. For safety the corridor corners are rounded. Fire extinguishers are inserted at baseboard height. Recessed, adequate metal hoppers are placed in the corridor walls for the collection of wastepaper.

The kitchen for the all-purpose room is equipped with the following permanent tools: (1) 10-quart table mixer, (2) scales, (3) desk, (4) soiled-dish table, (5) clean-dish table, (6) electric dishwasher, (7) checker's table, (8) four-tank ice-cream cabinet, (9) beverage box, (10) cold salad table, (11) electric four-unit hot foot table with 8-in. cutting board, (12) tray-table cart, (13) slicer- and clean-dish cabinet, (14) two 20 cubic-foot refrigerators, (15) metal cook's table with storage below, (16) preparation table, (17) gas-fired 80-gallon water heater, (18) gas-water-booster heater, (19) baker's table with bins below, (20) electric 150-pound potato peeler, (21) vegetable sink, (22) metal vegetable and sandwich table, (23) electric junior two-compartment steam chef, (24) two electric ranges with 12-in. place spreader, (25) one three compartment sink, and (26) a canopy.

Adjacent to the kitchen is the all-purpose room, 45 by 80 ft. It contains a stage, ten in-wall folding tables, a storage room for pianos and chairs, men's and women's lounge for community use, and a public telephone booth.

The windows and doors of the kitchen and the all-purpose room are equipped with fly screens.

The boiler room which contains the gas-fired hot water boiler for the radiant heating of the entire building is a one-story structure located off one side of a corridor. The boiler flue contains a spark arrester and is surmounted by a lightning rod. The incinerator is located in connection with the flue.

Ample storage space is provided for textbooks, custodial and instructional supplies. The custodians' office is equipped with slop sink (hot and cold water), mop hanger strips, and shelves.

The exterior of the building is faced with light matt-faced tapestry brick, with Indiana stone trim. Walls of tool rooms, main entrance, and terrace walls are strip limestone.

The building contains an attractive enclosed vestibule which leads to the administration unit. This unit is separated from the corridors by folding doors. It contains a reception room with a display case, bulletin boards, and a faculty mail box, general office with counter, a principal's office, a teachers' room, a vault, a room for intercommunication equipment, and a clinic.

The building is to be equipped with blond finished unit desks and chairs. The entire interior is finished with aesthetic and lighting conditions in mind. The reflection factors are at least 25 per cent reflection from the floors, 40 per cent for the woodwork and furniture, 60 to 80 per cent for the walls, 80 per cent or better for the ceiling.

The quality levels of the different parts of the building:

Roof. All steel bar joist and metal deck. No parapet walls over classroom sections. Twenty year bonded roof.

Ceiling. Perforated acoustical tile.

Floor covering. Asphalt tile — Type "C" or better in classrooms and halls, grades (1-6). Greaseproof asphalt tile in the kitchen. Linoleum with pattern in the kindergarten area.

Floor structure. Concrete slab on sand fill.

Exterior walls. Face brick.

Interior partitions. All masonry and plastered.

Insulation. Minimum ½ in., on roof only with 2-in. rock wool in ceilings.

Corridors. Tile 5 ft. 4 in. high with plaster above. Photo mural decorations in entrance lobby.

Hardware. Brass. Equipped with antipanic hardware and accessories.

Plumbing fixtures. Wall hung recepticals with hot and cold water in all lavatories.

Toilet room finish. Terrazzo tile wainscot and floors, steel stall partitions with mirrors in each toilet.

Painting. Three coat job, pastel tints.

Cabinetwork. Birch with plastic tops.

Light fixtures. Adequately spaced for daytime use — concentric circle incandescent fixtures.

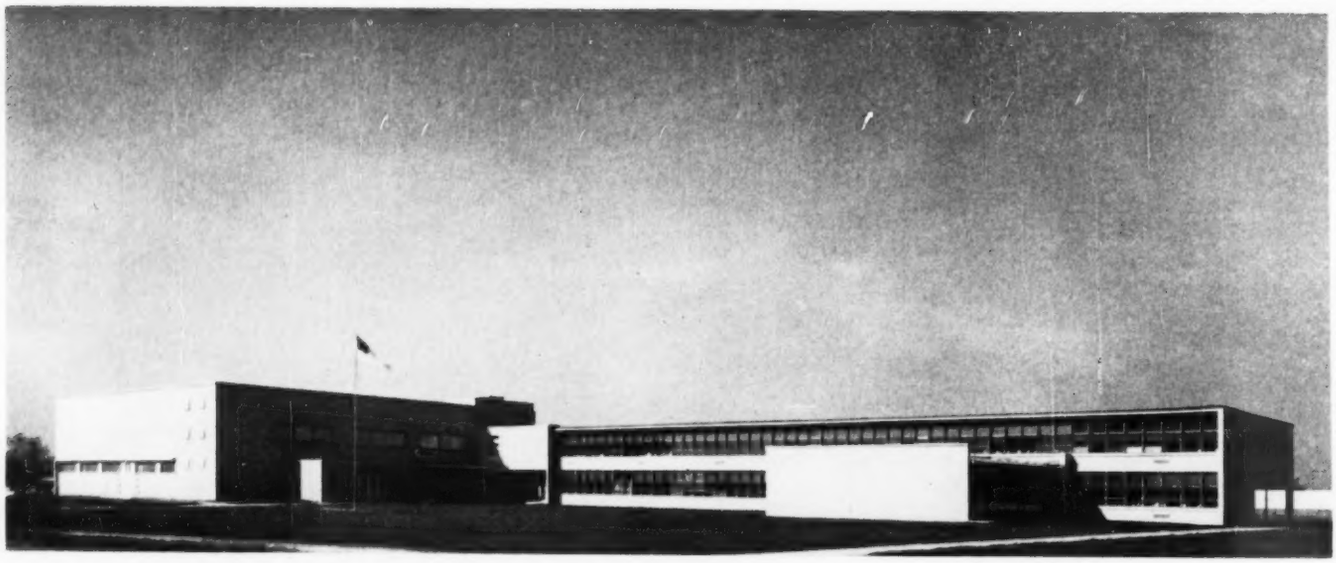
Glass. Double strength in main windows. Glare reducing in secondary windows.

Sash. Steel and aluminum sash.

Heating. Radiant panel heating in wrought iron pipe, in floors zone controlled.

Ventilation. Natural ventilation in classrooms and corridors. Fans in toilet rooms. Forced ventilation in all purpose room.

(Concluded on page 96)



The Oak Lawn Community High School, Oak Lawn, Cook County, Ill. — Madden & Connor, Architects, Harvey, Ill.

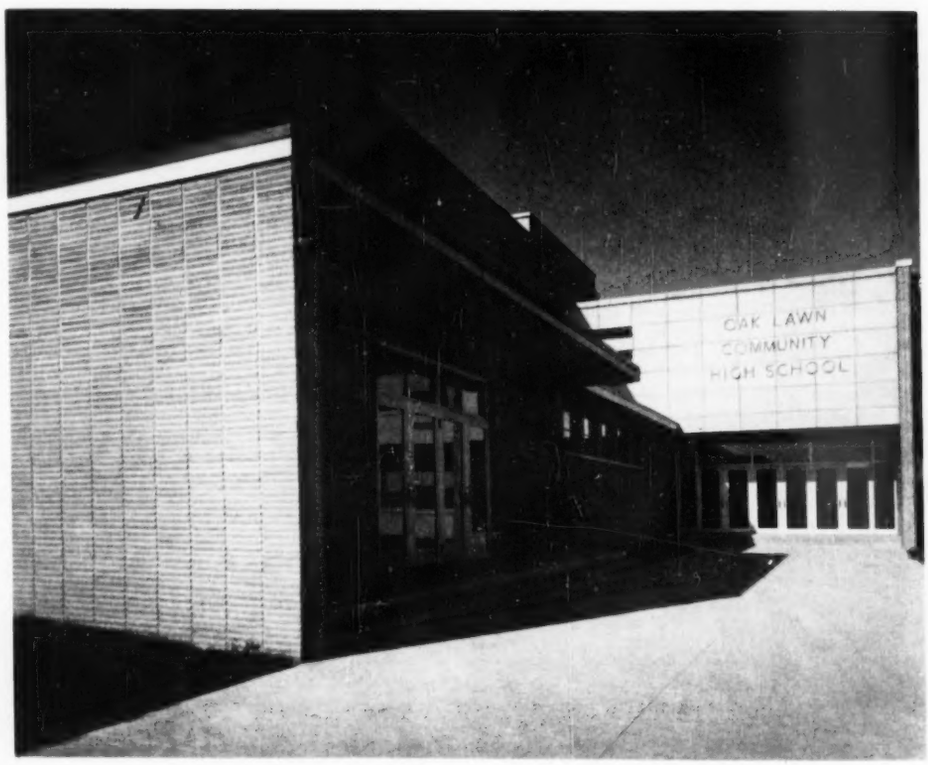
An Achievement in Financing —

Oak Lawn Community High School

The new Oak Lawn Community High School represents a fine achievement in school financing, district organization, and administration. The high school district organized under a compulsory school law enacted in 1949 required skillful work on the part of Superintendent David F. Winters and his professional associates. The board of education met serious and difficult problems in managing the finances and adjusting complicated tuition bills and tax matters. The area was growing rapidly in population but was slow in increasing its tax ability.

A high school had been a need recognized as far back as the 1930's. Oak Lawn is part of one of Chicago's most rapidly growing suburban communities. This progressive district's first step toward securing the school plant was to commission Lynn Hilton of the University of Chicago to make a comprehensive school survey of community curriculum and building needs, possible future population growth, special training essential to the local needs, and cultural potential of the area.

After interviewing several firms of architects, the board of education consisting of Warren O. Kneipp, president; Earl R. Adams, secretary; David W. Palmer, Deo F. Chapman, and Lawrence J. Castaldi retained Madden and Connor of Harvey as architects for the new plant. Close collaboration of the school board, Superintendent D. F. Winters, the architect, and the architect's educational consultant resulted in a dynamic solution to the problem. This high school fulfills the educational and aesthetic needs of the community and is an outstanding example of contemporary school design within a very limited budget.



The main entrance to the Oak Lawn High School. The doors on the left lead to the auditorium; those at the right to the main lobby.

The cafeteria-study hall has a small stage and is used for dramatics, speech correction, and radio broadcasting.

On Monday, December 17, 1951, work was started on the building, located on a central site at 95th Street and the Southwest Highway. The main classroom unit was ready for occupancy in September, 1952. Completion of the gymnasium-auditorium with athletic offices, etc., followed shortly thereafter, and since September, 1953, the entire school plant has been in use.

The building is of steel frame construction with exterior walls of buff colored face brick backed up with insulating cement block. The first and second floor ceilings are of fireproof acoustical material. A continuous band of windows consists of directional glass blocks over a vision strip, providing ample natural light and enhancing the exterior appearance.

The corridor walls are of glazed tile wainscoting surrounding individual recessed metal lockers.

The building has been planned in four units. Facing the street are two wings: the auditorium-gymnasium and the library. The main structure connects these two units and provides space for the administrative suite, the classrooms, laboratories, and other instructional and service units. The fourth unit is the one-story wing, extending into the play field and containing the cafeteria, the shops, and the related rooms.

The gymnasium-auditorium measures approximately 100 by 121 feet, and is complete with a league-size basketball court, readily convertible into two courts for practice or for separate use by boys and girls. The unit includes separate boys' and girls' shower and locker rooms, offices for boys' and girls' athletic directors; band practice rooms, a large stage, and rollaway bleachers to seat 1200 students. Used as an auditorium with folding chairs, the seating capacity is 1600 people. The permanent balcony over the shower-locker room, with the bleachers rolled away, provides space for wrestling, boxing, and other minor athletic activities. The roof

— Merrill E. Palmer

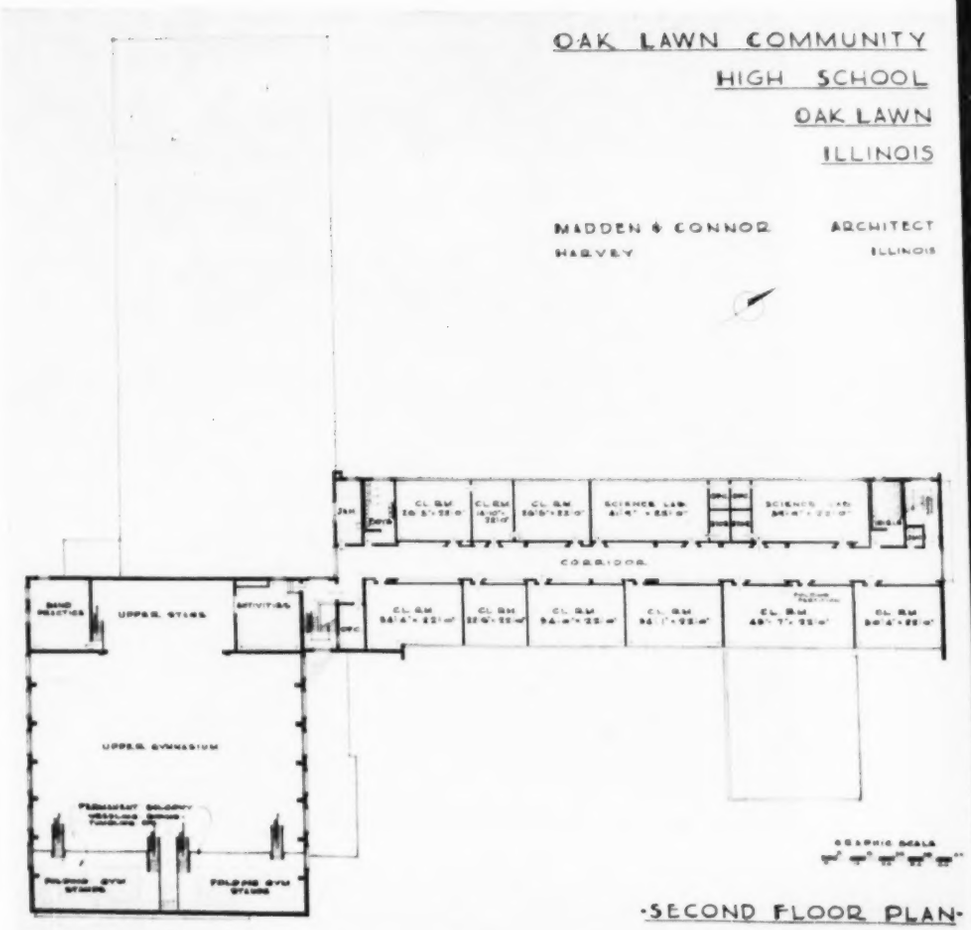
Students working in the chemistry laboratory at the new Oak Lawn High School

and ceiling of the gymnasium are lined with acoustical material which makes the room fully suitable for auditorium use. Huge laminated wood trusses span the gymnasium area with the result that the floor area is completely unobstructed.

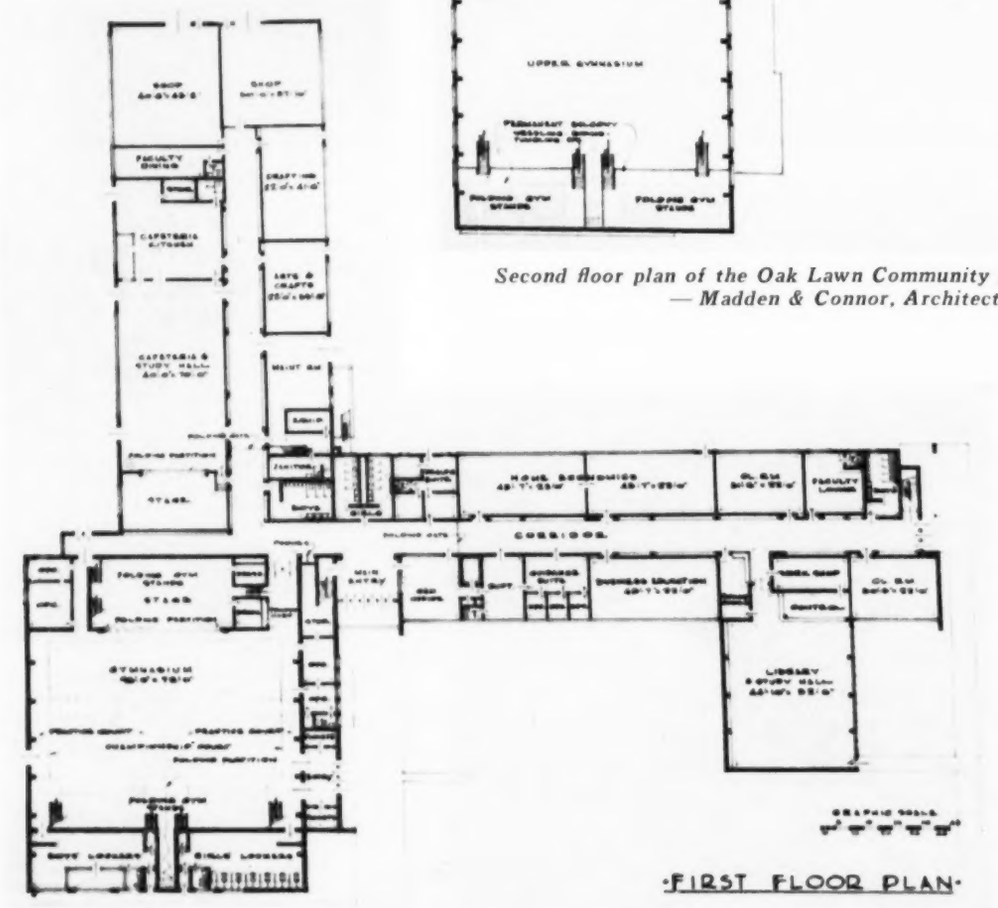
The library is the most attractive room in the school. It measures 44 ft. 6 in. by 60 ft. and has a high laminated truss ceiling. One entire wall is glass. Adjoining the library are a workroom and a school store.

The cafeteria-study hall, 40 by 70 feet in size, is a cheerful room with large doors and windows facing south. At one end of the room is a small stage suitable for dramatics, speech correction, radio classes, etc. The kitchen adjacent to the cafeteria is equipped with modern equipment and facilities. Just west of the kitchen is the faculty dining room, part of which is used as a faculty study-work room.

The shop wing consists of separate shops for woodworking, auto-electric work, industrial-arts, and mechanical drawing. This area has exposed steel joist roof construction, concrete block walls, cement floors, and industrial type fluorescent lighting. Overhead electrical power duct lines allow for maximum flexibility in placing and relocating shop equipment.



Second floor plan of the Oak Lawn Community High School, Cook County, Ill. — Madden & Connor, Architects, Harvey, Ill.



First floor plan of the Oak Lawn Community High School, Cook County, Ill. — Madden & Connor, Architects, Harvey, Ill.

Garage type doors in the woodworking and auto-electric shops permit the moving in and out of automobiles and other large equipment for study or repair. Paved areas outside of these shops also enable work to be done out of doors in mild weather. The shops have individual teachers' offices and storage rooms.

Domestic science is taught in two large rooms devoted to cooking and to sewing and homemaking. The cooking room is provided with eight complete kitchen units for use by from two to four girls each, a teacher's demonstration kitchen unit, a deep freeze, etc.

Two suites on the second floor are science laboratories for chemistry, physics, biology, etc. Each science room has an office and storage room.

The school administrative offices are located adjacent to the main entrance and consist of a general office, a superintendent's office, a board room, toilets, and a fireproof record vault.

Next to the school offices is the business education classroom, furnished with the modern business and accounting machines.

For convenience and ready control, the health suite consisting of waiting room, office, two recovery rooms, and toilet, is near the administrative office. This suite has a door opening out to the athletic field to permit direct admittance of play field casualties.

The women teachers' lounge on the first floor is a comfortably furnished retiring room, complete with toilet facilities.

A guidance suite, with three offices and a waiting room, is located just north of the superintendent's office.

Fourteen academic classrooms are provided for the various subjects included in the curriculum. Two smaller classrooms accommodate classes with small enrollments. Two small offices are set aside for faculty use.

The gymnasium-auditorium is easily converted into two small gymnasiums, and seats 1600 people as an auditorium; the ceiling is lined with acoustic material, and the laminated wood trusses provide unobstructed floor area.

The library, with its high laminated truss ceiling and one entire wall of glass, is the most attractive room in the building.

Fluorescent lighting is used throughout, except in the gymnasium. The lighting fixtures are louvered to decrease the cost of maintenance.

The school building is heated by low pressure steam, supplied by two oil-fired steel boilers. A large chimney was eliminated by the use of synchronized induced draft fans. All classrooms, the library, cafeteria, etc., are heated by unit ventilators fitted with special window-sill convectors to eliminate drafts. The heating and ventilation of the gymnasium is accomplished by remote coils and blowers for both supply and return air.

A generous parking area is situated just south of the building and will be floodlighted for night use. A football and athletic field and two baseball diamonds are located west of the building.

By the dual use of several rooms, this building may accommodate 750 students. Provision for future expansion when needed has been anticipated in the location of the building on the site, and in heating mains, electrical conduits, boiler room layout, etc.

The construction cost of the building is $720,000. This amounts to 68 cents a cubic foot or $9.50 a square foot.

Axel E. Johnson of Chicago was the general contractor; Metrick Electric Company of Chicago, the electrical contractor; Beverly Heating Company, Inc., of Chicago were the heating and ventilating contractors; W. T. Mahoney & Sons of Chicago installed the plumbing.

Legally Necessary —

Elements in a Satisfactory School Building Contract

*James W. Tyler**

Much attention has been given to the planning of housing facilities conducive to the development of enriched learning activities. The importance of such planning cannot be overemphasized. Yet, planning alone does not suffice. To be of maximum usefulness, building plans must be executed and incorporated into a structure usually by means of a contract. Early methods of schoolhouse construction utilized voluntary labor and donated materials. The procedure of contracting for school buildings evolved somewhat later. Traditionally, the contract was made by word of mouth with an individual in the community. As schoolhouses have increased in size and complexity and the building industry has become more specialized, oral agreements are no longer adequate, and contracts are let more often to construction companies than to individuals. Thus, it is necessary to have a tangible written form of agreement.

There is at present no complete set of contract documents applicable to the situations that exist between a school board and a building contractor. Such documents are needed to supply the vital link between the architectural and educational planning and the completed building. The need for a solution to this problem has been emphasized by specialists in the school plant field. The Commission on American School Building of the American Association of School Administrators listed the development of standard forms of building contracts as a problem which it considered most urgent.[1] The need for research in this area is also stressed by Holy and Herrick.[2]

The task of developing standard contract forms for the construction of school buildings was assumed by the present writer under the auspices of the Division of Surveys and Field Services, George Peabody College for Teachers.[3] The study encompassed 14 selected states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Six major objectives were included in the plan of attack:

1. To determine state controls on schoolhouse construction contracts by an examination of state constitutions, state laws, and regulations of state boards of education.
2. To determine principles of contracting for schoolhouse construction as revealed by a study of court cases decided by federal and higher state courts.
3. To ascertain the recommendations of writers in the field of architecture, construction, and school plant pertaining to the content of schoolhouse construction contracts.
4. To secure the benefit of previous experience with the problem by a study of standard forms in current use in the 14 states.
5. To enumerate the essential elements of a satisfactory agreement between a board of education and a building contractor by analyzing the data accumulated from a study of the laws, court decisions, literature, and standard contract forms.
6. To incorporate the satisfactory elements into a set of contract documents as stated as the ultimate purpose of this study.

The primary responsibility for providing school buildings in all states is vested in the local school boards. The authority of these local boards is derived from the state constitutions and state laws.

All of the 14 states studied prescribe minimum standards for school buildings constructed by local boards of education. In 13 of the states plans and specifications for new school buildings must have the approval of some state agency, usually the state department of education. Seven states require that contracts for schoolhouse construction be advertised and awarded in a prescribed manner.

A surety bond is required of the contractor in 10 states, and in the other four states the use of bonds is recommended by the state education agencies. The amount of bond required ranges from slightly more than 25 per cent in North Carolina and Tennessee to 200 per cent in Arkansas. Educators specializing in school plant planning recommend surety bonds in the amount of 100 per cent of the contract price with a company licensed by the state to write surety bonds. In interpreting the intent of bonds, the courts frequently read into the bond provisions of the statute on which it is based. The failure of a school board to require a bond of the contractor as required by law may render it liable for labor and material claims in addition to being held responsible for its own losses.

There is general agreement that the contractor is responsible for maintaining workmen's compensation insurance to the full extent of his liability. The board of education is usually responsible for maintaining fire and tornado insurance on a building while it is under construction, but in Alabama such insurance must be provided by the contractor. The courts have ruled that losses caused by an act of God must be assumed by the owner of the building.

The documents recommended to constitute the contract for the construction of a public school building are: (1) advertisement for bids, (2) proposal of bidders, (3) the agreement, (4) general conditions of the contract, and (5) the contractor's surety bond.

Advertisement for Bids

The advertisement for bids should be a clear and concise presentation of the work to be performed and the major conditions governing the work. The following information is essential:

1. The name and address of the board of education receiving bids
2. The method for submitting bids
3. The time limits for submitting bids and the time and place for opening bids
4. The identification of plans and specifications for the work and the place where they may be examined and procured
5. The deposit required of contractors receiving plans and specifications
6. The certified check or bidder's bond required of the contractor to insure that the bid will not be withdrawn
7. The type and amount of surety bond that will be required of the successful bidder
8. The type and amount of insurance that will be required of the successful bidder
9. The right of the board of education to reject any and all bids and to waive technicalities
10. The time limits of the contract and the amount of liquidated damages that will be charged for each day of delay.

In case of surety bonds and insurance it is necessary to state the requirements in the advertisement; otherwise, if required, the board of education will have to pay the premiums on the bond and insurance.

Form of Proposal

A form of proposal for all bidders is used to secure a measure of uniformity among the bids and to enable the board of education to make an intelligent comparison. The pro-

*Arlington, Virginia.

[1]Commission on American School Buildings, *American School Buildings* (Washington, D. C.: American Association of School Administrators, 1949), p. 316.

[2]T. C. Holy and John H. Herrick, "School Plant," *Encyclopedia of Educational Research*, ed. by Walter S. Monroe (New York: Macmillan Company, 1950), p. 1119.

[3]James W. Tyler, "Standard Contract Forms for the Construction of School Buildings" (unpublished Doctoral Dissertation, George Peabody College for Teachers, Nashville, Tenn., 1952).

posal should be brief. It should contain these statements by the contractor:

1. That he has carefully examined the plans and specifications and other documents and the site of the work
2. That he agrees to construct the building for a certain specified sum
3. That the enclosed certified check or bidder's bond is a guarantee that he will not withdraw his bid for a period of 30 days after the time set for opening the bids
4. That if awarded the contract he will complete it within a specified number of calendar days
5. That the board of education is entitled to liquidated damages in a specified amount for each calendar day the contract remains incomplete in excess of the number of calendar days allotted for the project
6. That the board of education may reject any and all bids and waive technicalities.

The proposal should bear the identification of the project for which it is designed and the signature of the bidder.

The Agreement

The agreement is often referred to as the contract or basic document. The date of execution of the agreement is the reference point for all time limits of the contract. The agreement should contain the names of the parties to the contract and eight additional articles pertaining to the following items: (1) scope of the work, (2) time of completion, (3) contract sum, (4) progress payments, (5) acceptance and final payments, (6) bond requirements, (7) insurance requirements, and (8) component parts of the contract.

The agreement should be dated and signed by the board of education, the contractor, and legal approvers.

General Conditions

The general conditions of the contract is the longest and most thorough of the contract documents. The document recommended for use by school boards contains 50 articles. The general conditions should contain provisions as follows:

Parties to the contract. It is well to identify the board of education having ownership of the building, the contractor, and the architect, who constitute the parties to the contract.

Definition of terms. To foster an understanding of the contract provisions by all parties, the following terms should be defined: (1) the documents constituting the contract, (2) the relationship of the various contract documents to each other, (3) technical or trade terms, (4) the law governing the construction of the contract, (5) time limits, (6) written notice, (7) work, (8) or equal clauses, and (9) substantial completion.

Payments. The method of applying for payments by the contractor should be prescribed. The architect's role in issuing certificates of payment should be defined. A statement should be included regarding the time of payment by the board of education and the penalty for failure to make payments promptly when due.

Payments withheld. The architect should be authorized to withhold certificates of payment to protect the board of education from loss due to:

1. Defective work uncorrected
2. Claims filed or reasonable evidence indicating probable filing of claims
3. Failure of the contractor to show evidence of payment to subcontractors or for labor and materials
4. Reasonable doubt that the contract can be completed for the balance then unpaid
5. Damage to another contractor
6. Damage to the property of the board of education or to adjacent property

Effect of final payment upon acceptance of the work. The parties should agree that the right to reject defective work is not abrogated by certificate of payment, payments, or occupancy.

Scope of the work. The scope of the work should be defined and the contractor should agree to furnish workmanship and material of quality.

Employees. A statement should be included that the contractor agrees to pay all his employees wage rates equal to or exceeding those stated in the specifications. The basic working day should be defined as eight hours with provision for overtime. The contractor should agree to enforce strict discipline and good order among his employees and to employ on the work only employees who are skilled in the work assigned to them.

Surety bond. The requirements regarding the amount and type of surety bond should be stated. In no case should the bond be for less than 100 per cent of the contract price. The bond should be purchased from a company licensed by the state to write surety bonds.

Liens. It should be clearly stated that no lien may be made on the structure or the land upon which it is erected.

Liability insurance. The contractor should agree to furnish sufficient liability insurance to protect him from claims under any laws governing the contract. Certificates of such insurance should be filed in the office of the board of education.

Fire, tornado, earthquake, and hail insurance. The board of education should maintain fire insurance on the entire structure for 100 per cent of its insurable value. Tornado, earthquake, and hail insurance should be maintained by the board up to 85 per cent of the insurable value of the structure. Those requirements should be stated in the general conditions and the scope of coverage of such insurance delimited. The board of education should be given power to act as trustee for all the insured parties in the event of loss.

Extended coverage. If extended coverage or other special insurance is demanded by the contractor, the board should be authorized to effect such insurance at the contractor's expense by appropriate riders to its other insurance policies.

Changes in the work. The policy regarding changes in the work should be clearly defined. All parties should be able to initiate changes, but to be effective all such changes should be approved in writing by the board of education and the architect.

Claims for extra costs. Much trouble can be avoided by establishing a procedure for making claims for extra costs. It is wise to require the submission of all claims by the contractor prior to the execution of the work for which extra costs are claimed.

Superintendence by the contractor. The contractor should agree that he is responsible for furnishing a competent superintendent for the work. Superintendence may be by the contractor himself, or by a competent foreman. In any case, superintendence should be thorough and continuous.

Inspection. The contractor should state his agreement to co-operate with the architect in making inspections and tests during the progress of the work. The contractor should agree to remove immediately from the premises any defective workmanship or material. Provision should be made for tearing out work for the purpose of inspection when necessary.

Protection of work, life, and property. A statement of the contractor's responsibility for maintaining constant protection of the work should be made. His responsibility for the safety of his employees and the general public should be stated also.

Specifications and drawings. The architect's duty to furnish all copies of the plans and specifications necessary for the execution of the work should be defined.

Detailed drawings and instructions. Provision should be made for the delivery of detailed drawings and instructions by the architect as needed by the contractor in the execution of the work.

Ownership of drawings and models. Ownership of all drawings and specifications should be held by the architect, except that the board of education should have custody of two complete sets of drawings and specifications to be used for maintenance purposes only. The contract should award all models to the board of education.

Shop drawings and samples. The contractor should be required to prepare all shop drawings and samples, submit them to the architect for his approval, and perform the work in accordance with approved drawings and samples.

Royalties and patents. The contractor should be required to satisfy all royalty and patent claims.

Permits and surveys. The responsibility for securing temporary licenses and permits should rest with the contractor. The board of education should assume responsibility for securing permits for permanent structures and for all surveys.

Delays and time extensions. Reasonableness should govern the construction of this contract provision. The contractor should be made responsible for any delays resulting from his failure to diligently prosecute the work, but he should not be held liable for delays resulting from causes beyond his control.

(Concluded on page 92)

Entrance to kindergarten and auditorium, Joseph Stokes Memorial Elementary School, Trenton, N. J. Micklewright & Mountford, Louis S. Kaplan, Architects, Trenton.

The Joseph Stokes Memorial School, Trenton, N. J.

*Paul Loser**

In September, 1952, Trenton, N. J., put into operation the Joseph Stokes Memorial School. This building was presented to the board of education of Trenton by Joseph Oliver Stokes as a memorial to his son, Joseph Stokes. The magnificent structure containing 18 rooms and an auditorium-recreation room cost, with land and equipment, $831,240. Mr. Stokes's bequest amounted to $759,000. Therefore, the city of Trenton obtained a much needed and beautiful building for approximately $72,000.

This building was designed to accommodate children from kindergarten through grade six and also to serve as a community center. The board of education purchased all available land acreage in the center of a rapidly growing district and the building was so planned that eight additional rooms can be added, when necessary. The building is constructed of reinforced concrete, with buff brick facing.

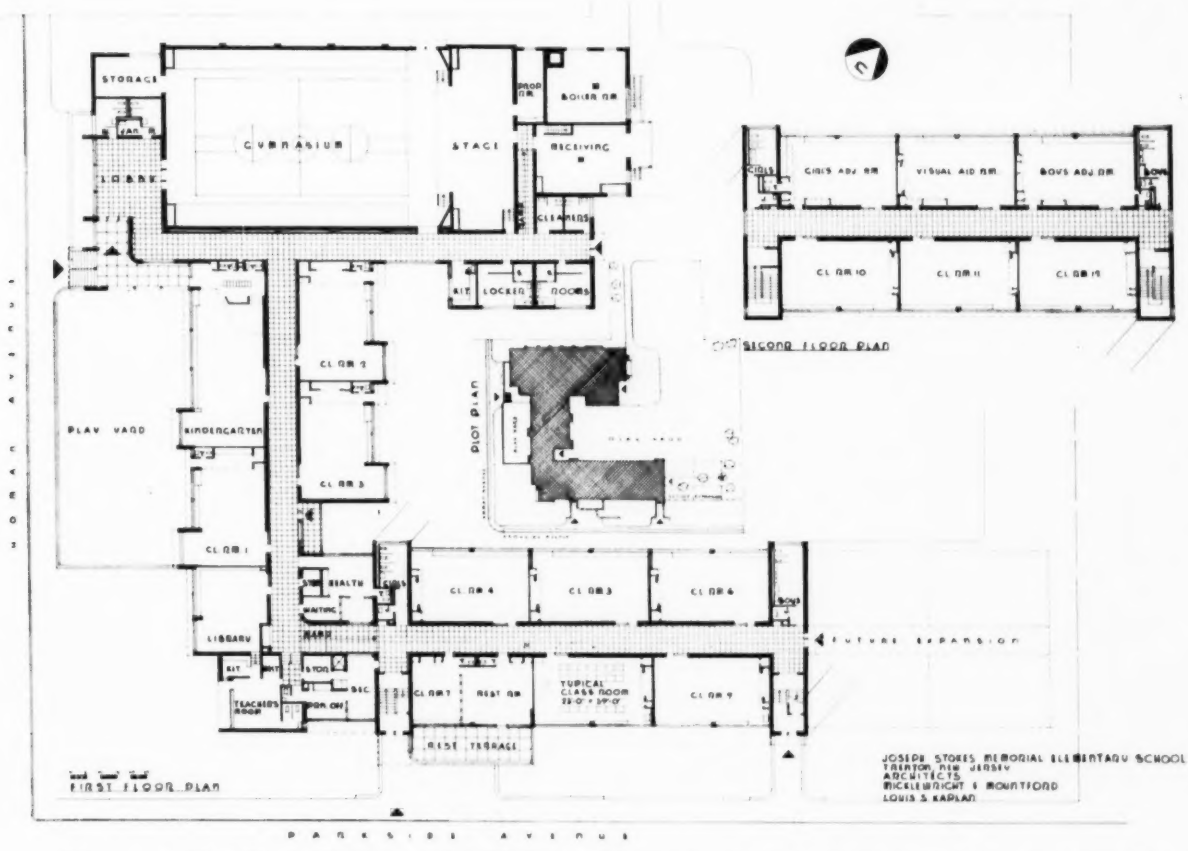
Coarchitects for the building were the firms of Micklewright and Mountford and Louis Kaplan. In the opinion of the school authorities the building is very practical for educational purposes and also beautiful from an architectural point of view.

The Joseph Stokes School is a co-operatively planned building. The same architectural firms planned a number of school buildings in Trenton, completed in 1940 under the P.W.A. Program, all of which represented advanced thinking in school planning at that time. Be-

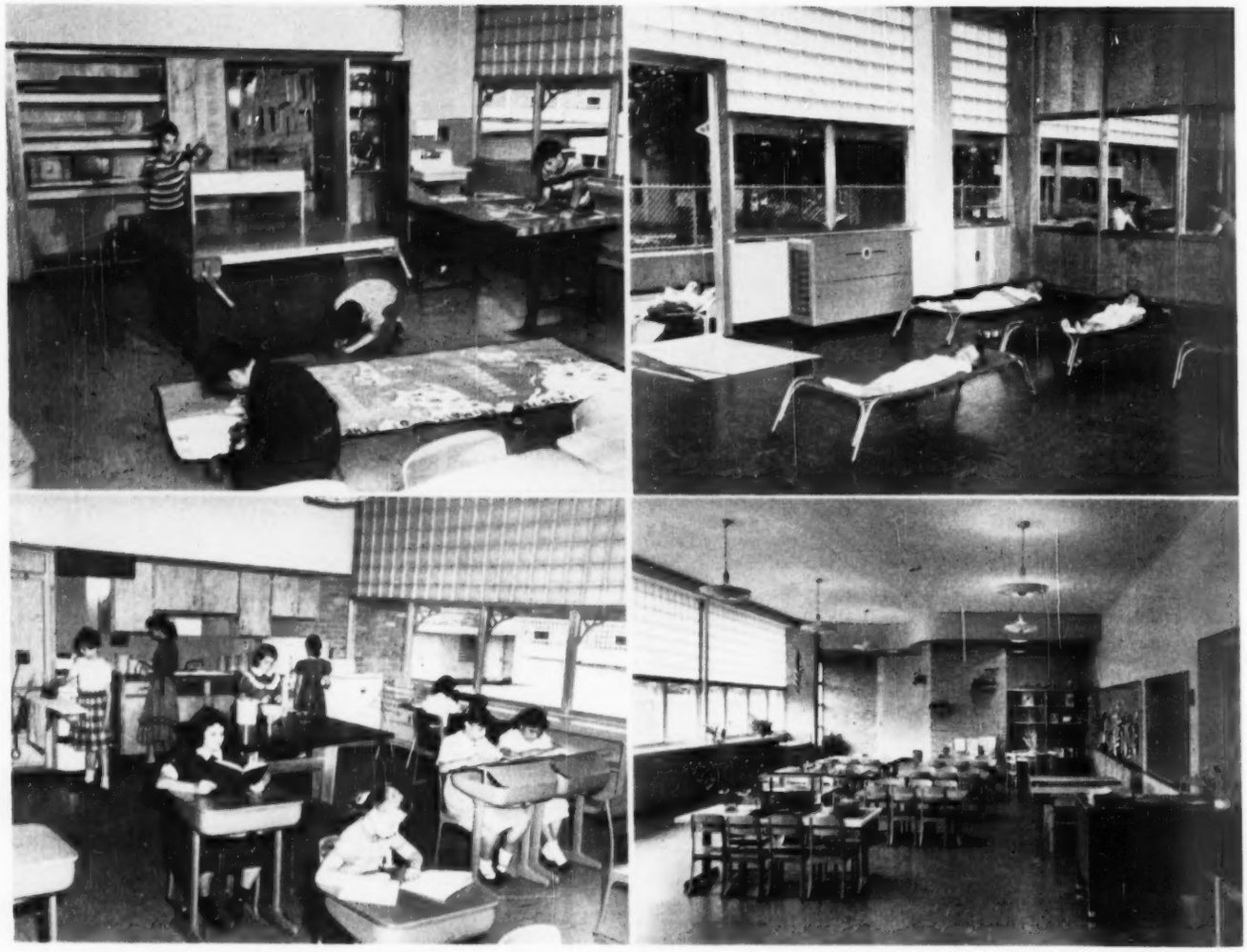
A typical classroom, Grades 3 to 6

*Superintendent of Schools, Trenton, N. J.

This two-story section of the Joseph Stokes School is arranged for expansion at the right.



Floor and Plot Plans, Joseph Stokes Memorial Elementary School, Trenton, N. J. — Micklewright & Mountford, Louis S. Kaplan, Architects, Trenton.



Upper left: ***Boys' adjustment room.*** **Upper right:** ***Health adjustment room.*** **Lower left:** ***Girl's adjustment room.*** **Lower right:** ***The kindergarten showing half of the floor area.***

fore the Joseph Stokes School was designed, principals, teachers, custodians, secretaries, and nurses who were working in the 1940 buildings were requested to suggest changes which would result in the most efficient building possible for today's children. Through the joint efforts of all these different groups the aim has been accomplished.

Auditorium and Recreational Rooms

The auditorium, located on that portion of the site which has the poorest outlook, is aesthetically one of the most beautiful areas of the school. The main entrance to this auditorium is through an amply lighted lobby, one side flanked by glass and the opposite walls buff faced brick. This spacious auditorium-recreation room is perfectly planned for its dual purposes. When used as an auditorium, it seats 500 people on folding steel chairs and has an additional available seating capacity for 450 more on folding bleachers. The lower wall area of the auditorium is surfaced with buff brick; the upper walls are soft gray-green; and drapes of the same color complement the higher wall sections. The cyclorama curtains are a soft beige, and the proscenium curtain is a basic green interposed with a modern design in red, green, and accents of black. To add further to the room's adequacy when used as an auditorium, the stage is fully equipped with the most modern panel-controlled stage lighting. Ceiling spotlights in the auditorium eliminate the need for footlights and, with the rheostat, make any lighting effects possible.

When the auditorium needs to be used for recreational purposes, the folding steel chairs are stacked on trucks and moved into a storage room adjoining the rear of the stage. If a basketball game is played, retractable basket backstops fastened to the ceiling are used and the folding bleachers again take care of the audience.

These combination auditorium-recreational rooms have been found to be very favorable community adjuncts in various sections of Trenton, and during the first year of occupancy this room in the Joseph Stokes Memorial School was used some sixty times by community organizations for recreational programs.

The rear stage entrance is a large fireproof door directly across a narrow corridor from a combination custodian's office and receiving room. This receiving room has a truck-height platform and, therefore, stage equipment for community dramatics can be readily moved into the building with no disturbance to the school program. The driveway to the receiving room is the only driveway on the school grounds and uses a very minimum of site area. Across a corridor from the auditorium are two completely equipped dressing rooms fitted with showers and lockers. A small kitchen useful for both school and community functions is also located here.

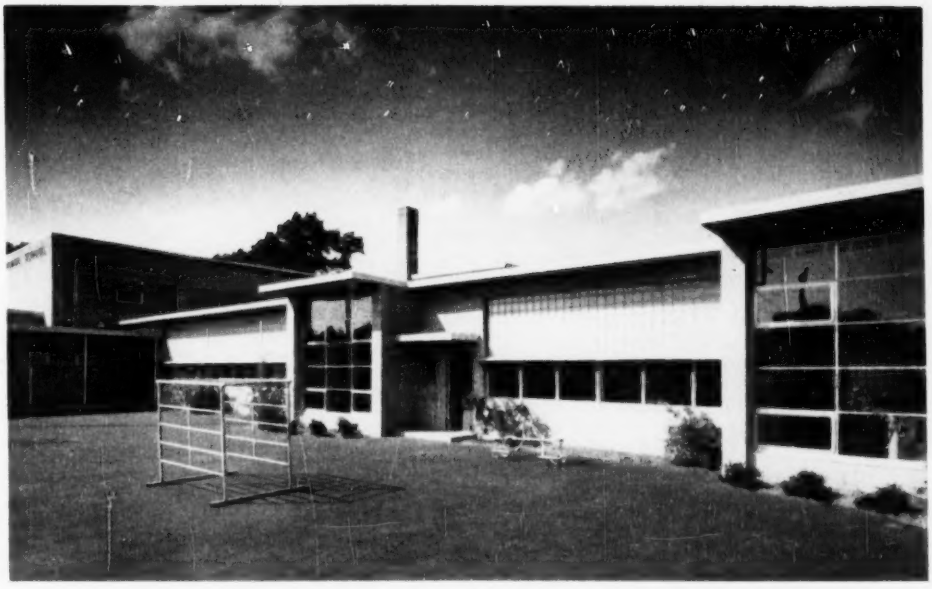
The entire auditorium wing is one of five heating zones in the building and can be completely separated from the rest of the school by a folding metal gate installed in the ceiling of the corridor leading to the auditorium.

The Kindergarten

The kindergarten room shares the entrance with the main lobby of the school and because of this generous common entrance with the auditorium, parents may wait under shelter for their children during inclement weather. This area can also be closed off by gates during the school session so that teachers need have no concern about their pupils going to

the street level. The kindergarten room shares with a first grade room a separately fenced in play area; it also has double toilet facilities, an alcove with wardrobe area, and storage space for foam-rubber resting mats, a sink, several woodworking benches, a library corner with open bookshelves, and adequate equipment storage sections for blocks, toys, etc.

In order to provide maximum playground area, the part of the building which can be expanded is two stories in height. The one story section houses the primary grades in self-contained classrooms having direct exits to the playground. Each room has a sink with hot and cold water and an accompanying work area, a drinking fountain, and a lavatory; besides this, wardrobes for children's clothing are provided; cabinets for large sheets of paper and drawings are placed beneath an appropriate bulletin board area; a built-in filing cabinet with an accompanying open shelf section, storage shelves adjacent to the heating units under the windows, a large storage closet, and a teacher's coat closet are standard provisions in the classroom. Each room also has directional glass block and aluminum framed vision strips. Large glass block panels next to the doors provide natural light for the corridors. All rooms are equipped with movable two unit furniture and have at least one library table.



The enclosed play area for the Kindergarten and First Grade

Health and Medical Rooms

There is also a health-adjustment suite where children with chronic diseases and those recovering from long illnesses who cannot stand the rigors of a long school day are assigned for rest and coaching. This self-contained unit consisting of a classroom, a rest room equipped with aluminum cots. A sundeck just outside faces the east where sun bathing may be had at the discretion of the teacher.

The medical suite includes a small waiting room where pupils and their parents may wait for strip-to-the-waist examinations, and a completely equipped nurse's room with cots for ill children, lavatory, examination light, filing cabinets for all health records. The room is of sufficient length to permit Snellen Chart examinations of the eyes. Provision is made for the pupils to pass from the waiting room to the nurse's room and then directly into the corridor so that there can be no confusion in the waiting room.

The portion of the building reserved for administrative and library purposes includes a general office for the secretary equipped with chairs for parents, a vault, and a supply and mimeograph room immediately adjacent. A private office with lavatory for the principal and a teachers' rest room are included.

The teachers' room contains a lavatory and a nook with a couch; this adjoins a kitchen equipped with an electric plate and sink with a door opening into the library. The kitchen was placed next to the library for the use of school and PTA committees who might desire to meet in the library and serve refreshments. Across the hall from this room is an adequate bookroom for general use.

The Classroom Unit

In the section of this building that has two stories the upper grade rooms are located. The fourth, fifth, and sixth grades are equipped with 10 degree-20 degree desks, and every classroom also has a sink with hot and cold water, a drinking fountain, wardrobes, a storage closet, and a library table.

The Board of Education, Trenton, N. J.

Seated, left to right, are: I. Herbert Levy; Mrs. Eric Mackey; Henry S. Urbaniak, president; Arthur W. Hamer, Sr.; Robert C. Belville; Harry J. Bodine; and Daniel A. Spair. Standing left to right: Frank I. Casey; Paul Loser, superintendent of schools; Frank H. Wimberley; and Lloyd J. Kelly. Mr. Belville retired as secretary of the board on September 1 after 55 years of service.

The second floor also houses two self-contained adjustment rooms — one for girls and one for boys. These are equipped for the instruction of children who may need a greater variety of experiences in a nonacademic program. Besides the regular desks and chairs, the girls' adjustment class has similar equipment to that in a well-managed home: stove, refrigerator, washing machine, iron, sink with accompanying work area, three closets, wardrobes, and a bathroom. As a result, excellent homemaking projects become an integral part of the curriculum.

The boys' adjustment class has proper equipment for its needs, also: two complete workbenches with locker units beneath for each pupil's own projects, a well-equipped tool closet, a unit for the storage of wood, a fireproof closet for turpentine, etc., two standard storage closets, a sink, drinking fountain, and a bathroom. Each class generally has an enrollment of approximately 22 pupils. With such facilities excellent learnings are assured.

The trim throughout the building is blond-finished birch, and the rooms are painted in pastel colors varying according to orientation.

Maintenance Considered

All classroom floors are asphalt tile. Corridors are lined with ceramic tile, have terrazzo bases and borders and linoleum floors. Stair towers contain steel stairs, with terrazzo treads and platform, and are lined with structural facing tile.

The item of maintenance was carefully considered. The Building and Grounds Committee of the board of education and the Superintendent of Buildings and Grounds considered the entire design from the point of view of future maintenance. One of the results of this latter consideration was that the only exterior painting required in the future will be the doors, since all window frames, sashes, and other trim are aluminum. Roof parapets and flashings were eliminated, and interior leaders were installed instead of exterior downspouts.

The auditorium-recreation room serves both school and community.

Sixth-grade pupils entering the new school under the guidance of the teacher used the school building as a wonderful lesson in community civics. They studied the history of the Stokes family and their school community. They heard talks by the architects, the Superintendent of Buildings and Grounds, and the custodian, and after they had completed their study of the building the pupils visited classes and helped younger children to learn much about the building.

The Trenton board of education feels that through the united efforts of architects, board members, and school employees it has obtained a building which is a fine, practical building which should be an inspiration to all of the citizens of Trenton and a fine memorial to Joseph Stokes.

Uniformity Lacking in —

Fees for Architectural Services in School Construction

*James W. Colmey, Ed.D.**

Economies may be affected in the cost of architectural services and fewer disagreements tend to occur when actual practices of architects are understood by school officials. Such an understanding usually results in a clear contract with a competent architect that is essential to a successful school building program. This contract should include a reasonable fee and a clear interpretation of the services.

To determine actual practices of architects in charging for services the writer has recently completed a study in the metropolitan area surrounding New York City, including New Jersey, New York, and Connecticut. Questionnaires were sent to 56 school districts in the area. Thirty-five of these school districts reported 64 different school building projects between January 1, 1945 and March 1, 1951 requiring the services of an architect. Of these 64 projects 43 were for elementary schools, eight were for primary schools, four were for junior high schools, six were for senior high schools, and three were for junior-senior high schools. Twenty-six of these 64 projects were for additions to existing buildings.

Amount of Fees

It is apparent from practices reported that architects usually do not follow the recommended minimum fee schedules adopted by local Chapters of The American Institute of Architects. In actual practice, architects charged from 5 per cent to 8 per cent of the cost of work, while the suggested minimum fees in 1952 were as follows:

Chapter of The American Institute of Architects	*Basic Fee for New Buildings*	*Basic Fee for Additions*	*Basic Fee for Alterations*
Connecticut	3.67% to 7.00%	No Recommendation	6.67% to 10.00%
New York	7.0 %	10.5%	10.5 %
Long Island	6.0 %	No Recommendation	8.0 % to 10.0 %
New Jersey	7.0 %	11.0%	11.0 %

*Administrative Assistant to the Superintendent of Schools, Manhasset Public Schools, Manhasset, N. Y.

Contrary to the Institute's statements that their suggested fee schedules serve as minimum fees, these fee schedules are higher than architects usually charge. For the majority of the projects in this study architects charged 6½ per cent or less of the cost of construction for combined architectural and engineering services.

Of particular interest is the fact that for the majority of the 26 projects in this study requiring alterations and additions, architects charged 6⅓ per cent or less of the cost of construction for combined architectural and engineering services. This is slightly lower than the median charge for all of the 64 projects including those involving only new work. Surprisingly, fees recommended for alterations and additions by the Institute Chapters in the metropolitan area surrounding New York City are much higher than architects generally charge. The writer does not presume to know whether this is the practice of architects in other parts of the country.

The New York and Connecticut Chapters of the Institute recommended lower percentage fees for jobs of greater magnitude. In actual practice, the "sliding scale" principle of determining the percentage fee was used in 17 of the 64 projects in this study. When the same per cent is used to determine the architect's fee for a large project as a small one, the architect tends to be paid a disproportionately large profit on the larger job at the expense of the school district.

In addition to differences in suggested fee schedules, the New York, New Jersey, Connecticut, and Long Island Chapters of the Institute of Architects make different recommendations regarding the services offered by architects. In actual practice, some architects offer more services than others. For the majority of the projects in this study architects had drawings and specifications prepared for the architectural, structural, engineering, and landscape work as part of their service. They also usually paid their own telephone, transportation, and other expenses. In a few instances, architects included the site survey, borings and tests, clerk-of-the-works, educational consultant, and consulting architect as part of their service. Architects that charged higher fees usually did not include additional services. In many cases they included fewer services. Therefore, it is important that whenever the fee charged by an architect is considered the services rendered by the architect ought to be considered at the same time.

Architects should co-ordinate the engineering and landscape work as well as the architectural work. Otherwise the engineering or landscape planning may interfere with or dictate the functional limits of the building being planned. Architects did co-ordinate the engineering and landscape work for most of the projects in this study. Engineering services were included as a part of the architect's basic fee for 55 of these 64 projects. In 32 of the 43 projects requiring landscape plans and specifications, architects included this service as part of their basic fee.

School officials are usually better prepared than outsiders to purchase school furniture and equipment. When they do this purchasing, a more thorough consideration of the educational needs related to the purchases and a significant saving for the school district generally results. In the study of actual practice school officials prepared these specifications for 55 of the 64 projects. When architects did this work, they charged from 6 to 10 per cent of the cost of the furniture and equipment.

Types of Fees

Architects use several different types of charges for their services and although some types are more common than others, there are occasions when each of the different types is used. The most common type of fee is the percentage fee. With this type of fee an architect is paid an agreed percentage of the total construction cost of the work. This form of payment has been used by architects for a good many years and it is still one of the best means of determining fees in spite of some of its weaknesses. Variations of the percentage fee are sometimes used such as: (1) percentage of cost of construction with sliding scale based upon amount of cost; (2) percentage of cost of construction with lump sum agreements as limits to fee; and (3) percentage of cost of construction with other special conditions.

Another basic type of charge is the cost-plus-fee. This method of charging fees is sometimes used in the following ways: (1) cost-plus-fee fixed by agreement; (2) cost plus an agreed percentage of the cost of construction; (3) cost plus an agreed ratio of technical salaries; and (4) cost-plus-fee with percentage of cost of construction as maximum limit. Agreements with architects for the 64 projects in this study were based on the per cent of the cost of construction for 40 projects, on the per cent of the cost of construction with a sliding scale based upon the amount of cost for 17 projects; on the per cent of cost of construction with lump sum limits for four projects; on the per cent of the cost of construction with other special conditions for one project; and the cost plus an agreed ratio of technical salaries for two projects.

Contract Agreements

Contract agreements should be the outcome of the expressed needs of a particular school district and the ability of a particular architectural firm to meet these needs. School projects differ greatly in scope and magnitude. Moreover, architectural firms differ in overhead costs, management, organization, and architectural ability and experience. Therefore, contract agreements may be negotiated taking these factors into consideration.

Contracts should be negotiated on a professional basis. School officials should not permit competition on the basis of fees in the same manner that they do for other contracts where bids are requested and become the main criterion for selection. However, when seriously considering the selection of an architect, school officials should ask him what he will charge and what services he includes in his charge. The board of education, of course, can state that it does not intend to pay more than a specified per cent of the cost of construction for architects' services. Other contract agreements should also be clearly and frankly outlined.

Regardless of the agreements reached in the contract between the architect and the school district, all of the following legal requirements of a contract should be met:

1. It must identify the parties and state the time of performance.
2. It must be signed by authorized agents of each party.
3. It must include specific obligations on each party.
4. It must include offers and acceptances.
5. It must be free of fraud.
6. It must not conflict with existing laws, and
7. It must be possible of completion.

Implications for School Officials

Architectural practices regarding fees, services, and contracts that have definite implications for school officials as indicated by this study are summarized as follows:

1. Different Chapters of The American Institute of Architects recommend different amounts for fees and different types of services.

2. Generally, architects charge lower fees in actual practice than are recommended in fee schedules prepared by the local Chapters of The American Institute of Architects.

3. In actual practice, architects usually charge about the same fee for school work involving additions and alterations as they do for new work.

4. It seems logical that the architect should base his fee on a lower per cent of the cost of construction for larger projects.

5. Different types of fees should be considered by school districts.

6. Contracts with architects may be negotiated. In actual practice, school officials do negotiate contracts.

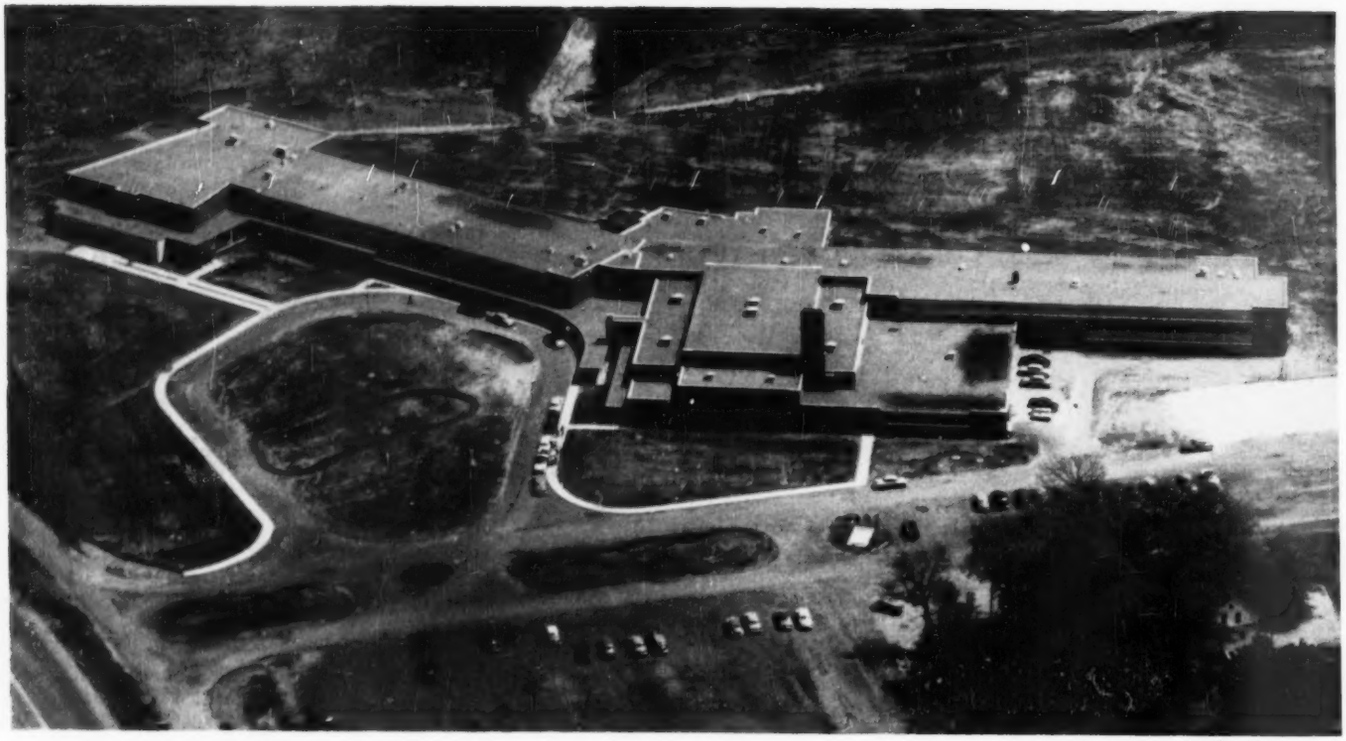
7. Architects should be hired by direct selection based on their ability, competence, and integrity, with due consideration given to their fees and services.

8. Architects are generally not employed to prepare specifications for movable furniture and equipment. School officials are usually better prepared to do this job.

9. Architects should be made responsible for co-ordinating the preparation of all drawings and specifications, including engineering and landscape work.

10. Contracts should be complete: The Standard Form of Agreement Between Owner and Architect prepared and distributed by The American Institute of Architects should be modified to meet local requirements.

Of course, these implications do not necessarily apply to other regions in the United States since this study included only the metropolitan area surrounding New York City.



Aeriel View, Minnetonka Senior High School, School District No. 7, Excelsior Minn. — Haxby, Bissell & Belair, Architects, Minneapolis.

A GREAT HIGH SCHOOL PLANT

*Wm. O. Nilsen**

The new $1,888,000 Minnetonka Senior High School is the result of co-operative planning by teachers, administrators, and public leaders to serve the educational and also the community needs of six merged school districts in the rural-suburban area 20 miles west of Minneapolis, Minn.

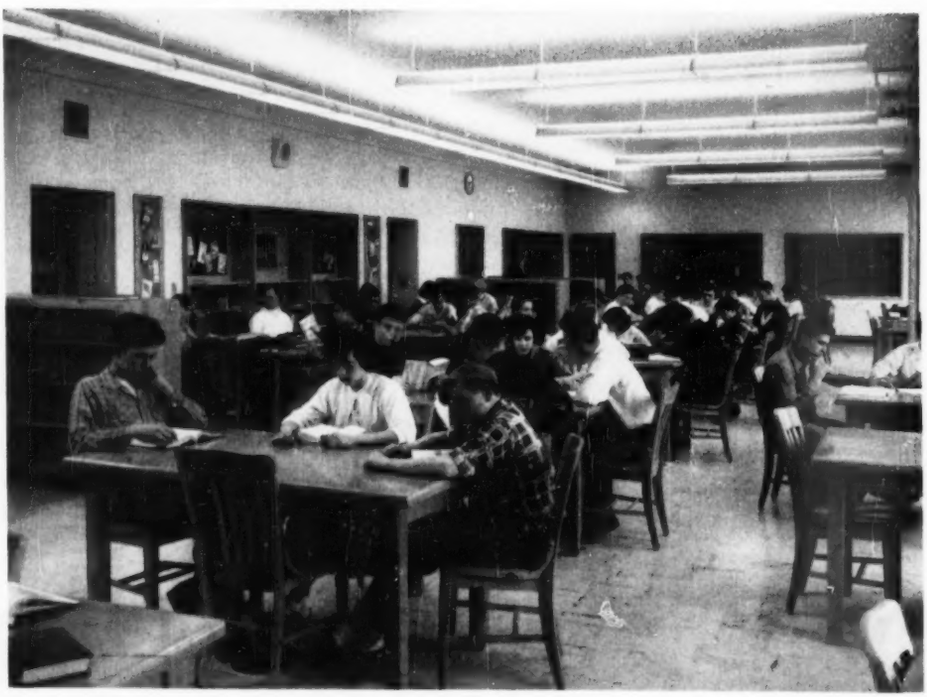
The school plant was designed by Architects Haxby, Bissel, and Belair, Minneapolis, with the long-range future in mind. It served 450 pupils last year, yet it can handle an anticipated 1200 pupils, eight or ten years from now, with no further construction needed. And when that capacity is exceeded, the construction of a third floor over the north wing has been provided for.

The long-term investment is reflected in the use of permanent materials and 1-A fire-rated construction, as well as in the flexibility-of-use designed into the several instructional areas of the school.

The structure now houses tenth-, eleventh-, and twelfth-grade facilities, and also is the school district administration headquarters. It is busily occupied after school hours by community and school-related activities.

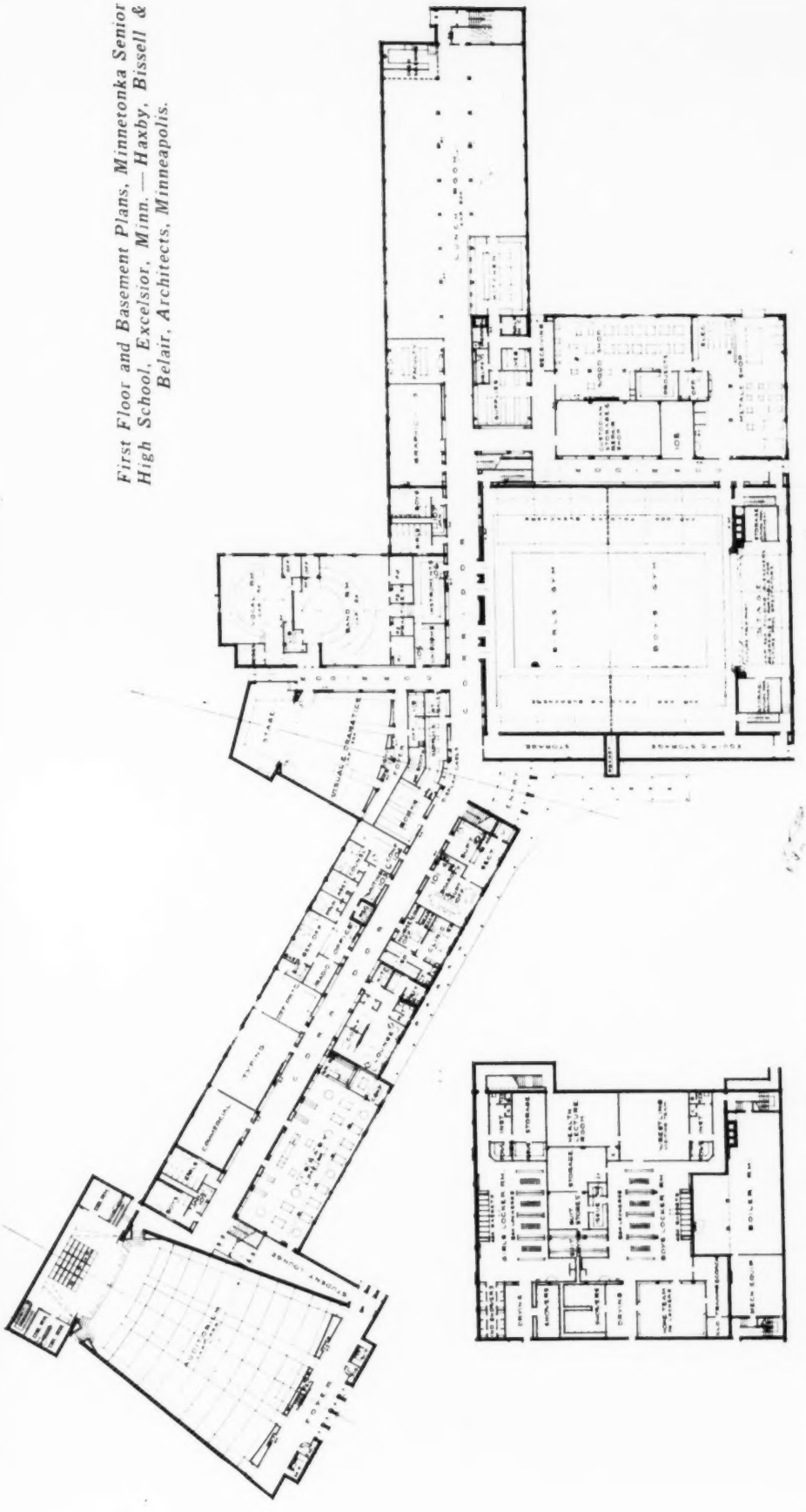
The school building is divided into functional units according to type of activity. The community-used facilities — the main auditorium, small theater-auditorium, library, lunchroom, gymnasium — have separate entrances to avoid disturbance of other areas.

Centered in the long 600-ft. building to the



The library suite includes a reading room for 85 students, a small conference room, and a combination work room and office.

*Superintendent of Schools, School Dist. No. 7, Excelsior, Minn.



First Floor and Basement Plans, Minnetonka Senior High School, Excelsior, Minn. — Haxby, Bissell & Belair, Architects, Minneapolis.

left of the main foyer is the administrative suite — district facilities of the superintendent, school board, and health department; the school principal's and the staff's private offices; a large general office; counseling and conference rooms, and a faculty lounge — all ample for the enlarged use anticipated five or ten years from now. The public-address radio room in this area can broadcast to and receive communications from any or all rooms.

The health unit includes a main office, a reception room, a soundproof room for the hearing tests, a conference room, and a rest room with three cots. Detailed health records for each student in the district are kept here.

The faculty lounge includes lavatories, visiting area, two small conference rooms dividable by a folding door, and a small kitchen area, also set off by a folding door.

The commerical classrooms are near the general office so that the printing, duplicating, and office-machine classroom may be available to both areas. Eventually 15 different office machines will be provided.

The library, seating 85, and the bookstore are also in this wing. Next to the library just outside the main auditorium foyer is a student lounge area. When furnished it will provide facilities for student associations before and after school hours. It has its own entrance.

At the far eastern end of the building is the main auditorium seating 1005, with fully equipped stage, modern lighting and dimmer equipment, and the most up-to-date theater seating. This auditorium has its own main entrance foyer, ticket office, and toilet rooms so that it can be used independently of the main building.

At the opposite end of the building's length is the lunchroom with a very modern kitchen, walk-in cooler, vegetable and fruit storage room, large stock room for nonperishables, garbage destructor room, and locker and washroom space for cooks. It seats 500 students in the main area, plus a separate faculty dining room.

A short corridor to the right of the main foyer sets off the music wing and audio-visual center. The latter has a fully equipped stage and auditorium seating 249 pupils, with dual projection and darkening facilities and built-in speakers. It has a colorful "little theater" atmosphere.

The music wing can accommodate an 80 to 90 piece band in one unit and a 90-student chorus in the other. Both units have built-in semicircular concrete risers, space for uniform storage, an office, and a joint library. The band unit has four practice rooms and an instrument storage room. This wing also has a separate back entrance.

The gymnasium, 108 by 108 ft., can be divided into boys' and girls' physical education areas by an electrically operated folding door. For conference play, folding bleachers can accommodate 2000 to 2500. Below the gymnasium are separate locker rooms, showers, a combination wrestling and visiting team room, health lecture room, and instructors' offices.

The gymnasium also has a versatile stage so that it can be used for large assemblies. This stage will be equipped with folding, portable bleachers that can be reversed for spectators for a future swimming pool to be built adjacent to the gymnasium. At such times, a large folding door will close off the stage on the gymnasium side.

The woodshop, metal shop, custodian storage and repair shop, and the graphic arts department are in the southwest wing of the building. The graphic arts and drawing department accommodates 24 students for instruction in printing, silk screen and blueprinting. The metal shop has space and equipment to teach arc-welding, gas-welding, sheet-metal, art-metal, forging, soldering, auto-mechanics, and bench-metal work. An outside ramp and a large door are provided for bringing materials, automobiles for repair, etc.

On the second floor is the science department with a combined physics-chemistry laboratory and a biology-classroom laboratory. As enrollment grows, two adjoining classrooms will become science lecture rooms. Here also is a complete photographic darkroom.

In the same area are the homemaking and art departments. The homemaking unit is one big work area with three divisions: (1) unit kitchens, (2) laundry equipment, (3) sewing.

The art unit has formica-topped tables for flexibility of use. In the rear part are woodworking benches, tables and counters for third dimensional projects. Semicircular wood- and leather-tool shelves to assure tool organization, and a large top-loading ceramic kiln are among special features of this unit.

All art, industrial, and science rooms have good-sized individual project storage cabinets; shelves or lockers; and sinks for after-class wash-up. Each also has ample display racks or tackboards to present student work for comparison and admiration.

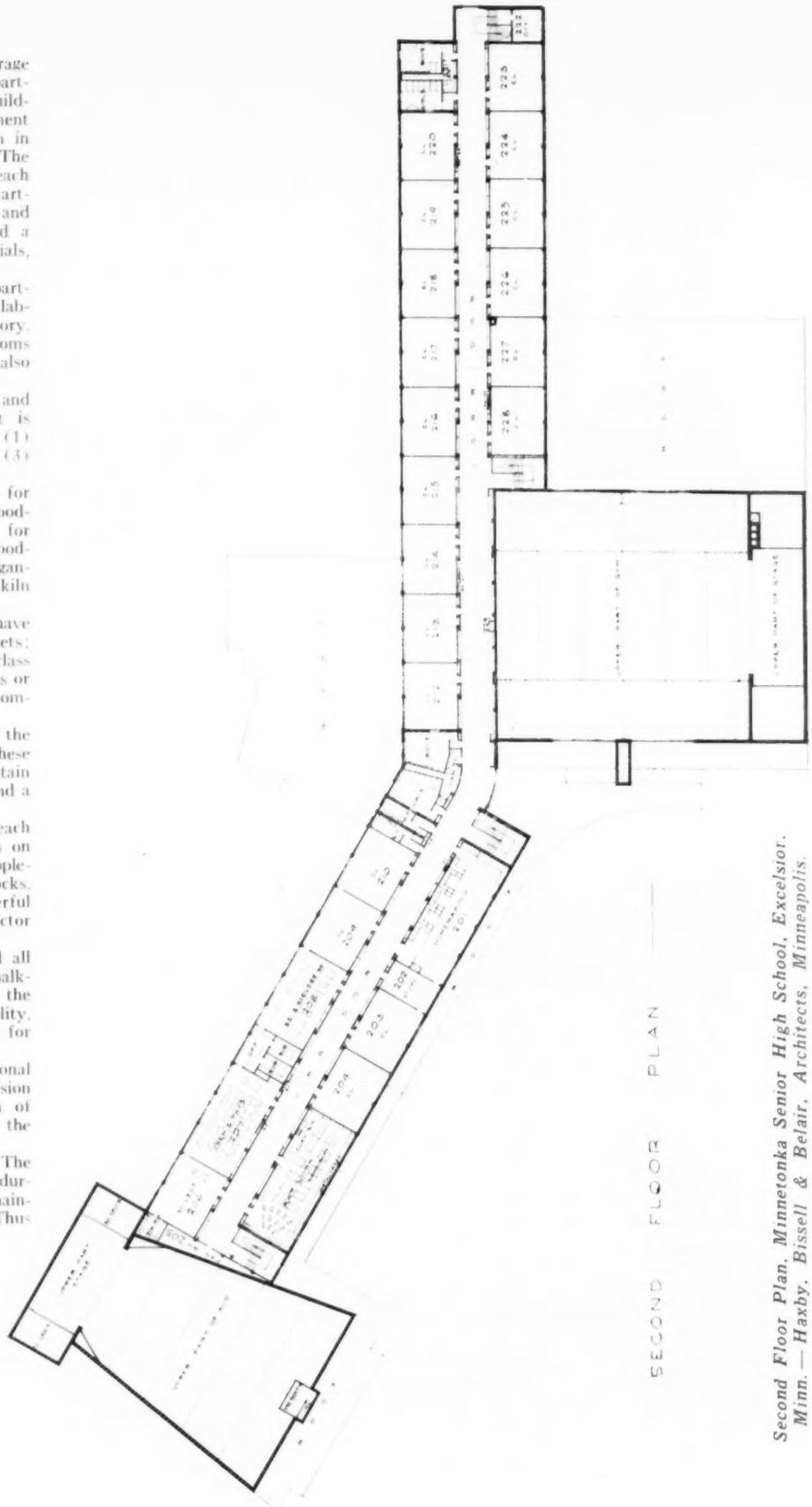
There are 20 general classrooms on the second floor for academic subjects. These rooms are 23 by 30 ft. in size and contain student desks. Each has a book cabinet, and a teachers wardrobe and supply cabinet.

A slate chalkboard is at the front of each room and a full-size tan cork bulletin is on the side wall. Fluorescent lighting, supplemented by natural light through glass blocks, and carefully selected colors provide cheerful working conditions for student and instructor at all times.

After the school board had considered all the pros and cons of various kinds of chalkboard, it was decided that because of the qualities of durability and better visibility, natural slate would be the best material for our new high school.

All instructional areas have light-directional glass block areas and louver-hooded vision strip windows of steel sash — a system of daylighting well suited for this part of the country, the architects point out.

A word about selection of materials. The school was planned as a permanent and durable unit to provide full service and low maintenance over a long period of time. Thus



Second Floor Plan, Minnetonka Senior High School, Excelsior, Minn. — Haxby, Bissell & Belair, Architects, Minneapolis.

plastered walls, ceramic tile wainscot in the first floor corridors, formica surfaces in the art room, terrazzo floors in corridors, ceramic tile toilet floors, and a brick and concrete and steel exterior were all carefully chosen with this long-term investment in mind. The building was designed on a modular basis throughout to make later alterations easier.

Cork bulletins and cork-backed display cases are utilized a great deal throughout the building to provide space for student display to the public, and for special posters and bulletins.

All instructional areas, corridors, auditoriums, and gymnasiums are acoustically treated.

The long-term expansion needs of the district were also considered in selecting the imposing forested 30-acre rural site (1800 by 950 ft.). Work has started on developing playfields for tennis, baseball, softball, football practice field, a football conference game field in a natural bowl, a running track, and winter sports areas. There are approximately six acres provided for parking areas for cars.

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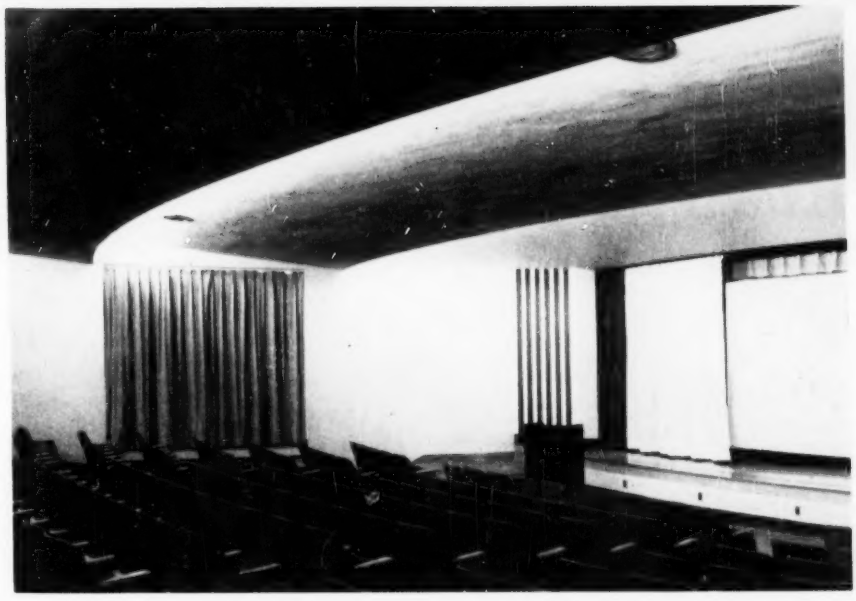


The "little theater" auditorium is designed dually for visual education use and for dramatics and public speaking practice.

Upper left: A glass wall allows the instructor to supervise office-machine students and typing students at the same time. *Upper right:* Thirty-desk academic classrooms are bright and cheerful through careful lighting and color selection. *Lower left:* The home-making room contains work units where individual projects can be carried on. *Lower right:* The art department has formica-topped tables and ample individual storage and display space.

Circumstances Control —

Multi-Story vs. Single-Story SCHOOL DESIGN

Louis N. Balluff*

There is considerable controversy over the relative merits of single-story and multi-story construction. Which is better? If there is a choice, where does the dividing line come? What are some of the considerations which enter into such a choice?

Some say one thing. Some another. Some point to the obvious fact that the multi-story, if a two-story building, uses one half the roof area, and one half the foundation area of a one-floor system. Heating, they say, may be less in the multi-story over the single-story, and plumbing systems in the multi-story school may be planned to cost less by stacking, that is planning toilet and shower rooms one over the other. And so on.

In rebuttal, hard-and-fast disciples of the single-story solution say all this may be true, but who builds multi-story any more? In time it is just out of joint. It isn't architecturally chic. It isn't progressive. Besides in the one-story school you get better lighting simply by introducing clerestory fenestration. Rooms can thus be made deeper. There is no fire hazard in connection with the one-story school plan. Maintenance is made easier, and so on, ad infinitum.

More than once I have heard the argument advanced that the dividing line between a single-story and multi-story school plant should be drawn when walking becomes a chore. Walking which way? Presumably you can walk farther in the single-story arrangement. But in this rule of convenience what might be a chore for one, might be a delight to another. And then again how does the trend to lower room ceiling heights and the replacement of stairs with ramps affect convenience?

Where is the truth and where is the fallacy in all of these arguments?

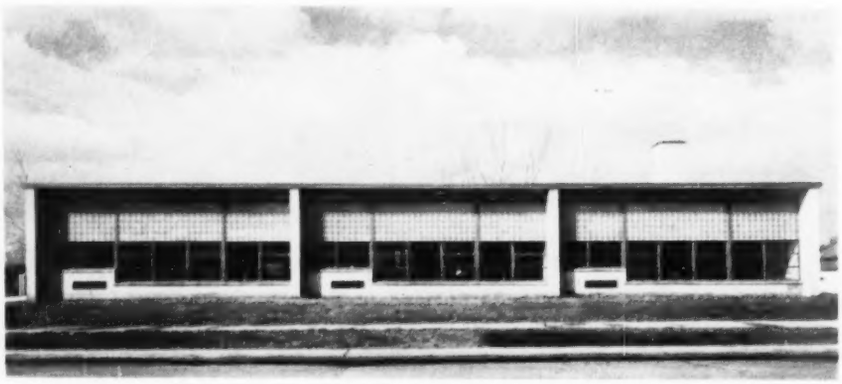
The chief fault I find with many of them, as I hear them most often used in my practice, is that they are arguments to effects not causes. They do not go deep enough in themselves to enlighten us on fundamentals. And it is these broad, basic, fundamental principles of choice in design which alone can direct us rightly to satisfactory solutions.

What are some aspects of these fundamental design and construction criteria which the conscientious school architect will study exhaustively before coming along with a solution which he knows will prove efficient and economical?

In the first place there are no pigeonhole solutions. There are no general, over-all, universal answers to the multi-story vs. single-story building problems. Each situation is unique to itself. To be handled intelligently, each case must be handled within the architect-engineer's professional talent and experience.

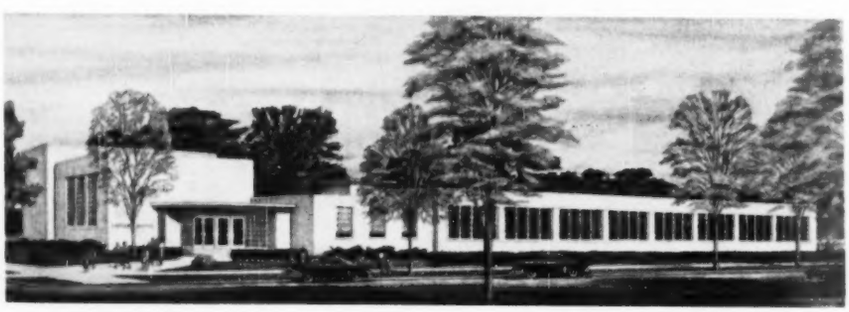
Why is this? The reasons are embedded in

*Architect-Engineer, Chicago, Ill.

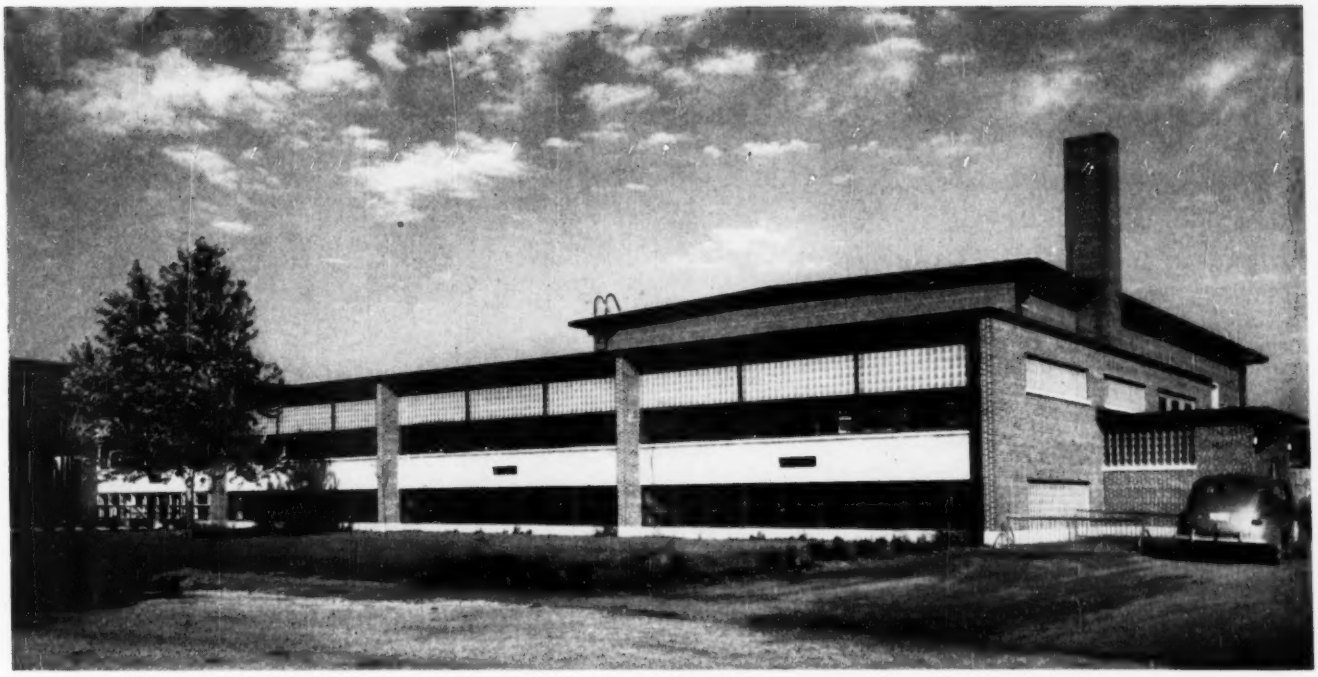


The Home Avenue School, Stickney, Ill., illustrates a one-story building housing a kindergarten, three classrooms, and offices. The design provides for additions.

The Haley School, Stickney, Ill., is an example of multi-story planning which includes administration offices, auditorium and stage, gymnasium, locker and shower rooms, kindergarten, and first grade classroom.



Single- and multi-story design are combined in the Lincoln School, Bellwood, Ill. The building contains eight classrooms, a gymnasium, and offices.



The Nixon School, Westchester, Ill., illustrates multi-story design planning. The addition pictured contains six classrooms, gymnasium and stage.

the very nature of a school community. Where may you find two exactly alike? For that matter where may you find two American neighborhoods alike in all or even a majority of their educationally significant details? True, to the layman they may look alike on the surface, but once you start to probe and dig with professional intent . . . well! Every school architect worth his salt knows that the school design and construction fit is custom made. Educational processes are necessarily complex and the school's existence is local.

Once we realize the complexity of schoolhousing requirements, immediately that does two things. It makes impossible an easy, formulated answer to any problem concerning school plant design and construction. And it points up the overwhelming necessity for thoroughgoing architectural studies. It also suggests that there will be as many answers to the multi-story vs. single-story and other design problems as there are schools to ask them.

Somewhere in the Bible there is a nobly stated sentence which tersely says "we know in part therefore we prophesy in part." Now we are on the track of a most common fault in school design. For various reasons the study stops short. Planning is affected all the way up and down the line. What a pity. Any detail in the occupancy of that building for all time to come will bear the brand mark of insufficient preplanning. Once you are on the train why not insist upon staying on until the destination is reached? There is a chance too that you will misinterpret the facts once you have them unless you are thoroughly familiar with their manifold implications. That is why it is so essential to have and rely on the counsel of the school architect trained to interpret these indicia clearly.

Perhaps now we have begun to bring into focus the range of the multi-story vs. single-story problem, as indeed the complexity of all architectural solutions which effectively receive responses.

To consider the problem critically on a professional level is to first classify and outline broad considerations of school design. What are some of them?

Quite naturally (along with the budget) site considerations will be primary.

Limited sites, of course, may normally make multi-story construction the only possible answer unless the building site is to be abandoned and a more suitable site found elsewhere, or the present location expanded. In these cases the answer may be fairly clear cut. But these do not constitute the large majority of cases. More often than not, there is a chance for choice.

Then the answer to the multi-story vs. single-story design question must be related to a number of educational use factors. The type of school, number of students, educational philosophy and methods of instruction, school community, future growth aspects, building maintenance and operation, utilities, lighting, building codes, play areas, facilities required, general characteristics of the building, interior spaces and rooms, service systems and equipment, mechanical installations, and obsolescence are significant, but not all inclusive, to the list.

Let us look into some of these architectural-educational relationships just a little further.

Take the matter of building capacity. It is not enough to know how many will be housed in the school, but statistics and numbers must be subject to rigid analysis as to where in the school, at what time, why, ratios of students to students, teachers to students, teachers to teachers, administrators to teachers, etc.

Or take the matter of the educational philosophy, the school organization and the instructional methods. That certainly will influence every aspect of school design and facilities. How important it is then for the architect to be thoroughly familiar with the particular educational system and what it requires and does not require. It is here that the school administrator who knows his own school system best must co-operate and help.

Or community planning. Again not a simple thing. How will the school building fit in with the community and perhaps city planning aspects? What will be the community use of building facilities? What is the direction of community growth? What is the composition of the school community today? What will it be five, ten,

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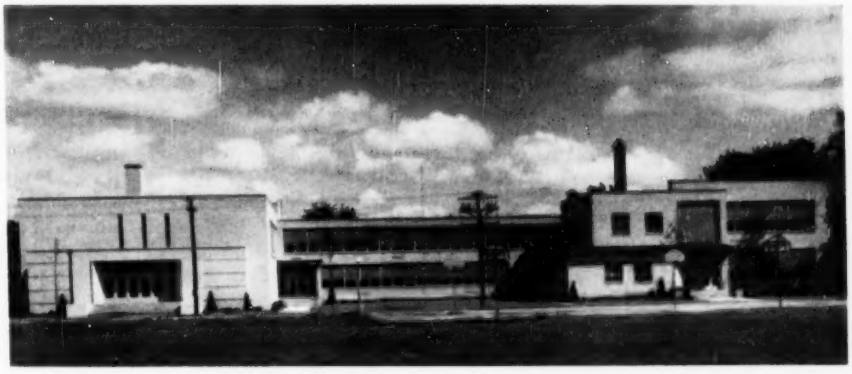


A multi-story design was chosen for the Roosevelt Junior High School, Bellwood, Ill.

Selecting the School Site

*Donald J. Lee**

At present we are riding a wave of new school construction period unprecedented in our history, with a greater number of school buildings having been erected during the past several years than in any other similar span of time. The continued high number of births, large-scale migration, together with the lapse in needed construction during the depression and war years dictate large amounts of schoolhouse construction for at least another decade. Thus the question of selecting adequate school sites is—and will continue to be—a matter of prime importance to countless communities.

Many districts choose sites on the basis of too few facts; others take no action to acquire land until the damage has been done. After the floodgates of housing construction have been opened and previously undeveloped land has been covered with new homes, there is frequently no remaining acceptable land available for adequate or correctly located school sites.

Who pays the bill for this lack of foresight? First, the taxpayers pay. Ultimately, land is purchased at an inflated price, to which must be added the expense of condemnation and building removal. The cost of constructing the building often mounts, owing to excessive charges for grading drainage, installing service facilities, and the necessity of complicated footings, such as pilings, to support the building. Furthermore, there is the cost of transporting the children as a result of forced acceptance of a site located beyond a reasonable walking distance from the schools. These and other "hidden" costs are passed on to the taxpayer over the ensuing years.

Second, tomorrow's children pay the bill. The educational program of a school which is located on a small inadequate site is, of necessity, seriously curtailed. This distressing situation commonly continues for fifty years or more during the building's usable life. Surely, then, school site selection must not be a policy of "too little and too late"; instead, it must be taken out of the area of guesswork and political pressures and placed within the field of a comprehensive analysis of long-term school-plant needs.

What then are the factors to be evaluated in selecting needed school sites? Four basic points are to be considered: size, topography, location, and cost. In order to aid local school districts in selecting their school sites, the Institute of Field Studies of Teachers College has developed a school site rating form, one portion of which is reproduced on this page.

It should be cautioned, however, that the above rating form does not evaluate in sufficient detail all the information required in selecting an adequate school site. Furthermore, the weighting of each individual item may differ among communities. For example, the standards of site size may, of necessity, vary between the types of large-city school districts and those of small rural communities. Nevertheless, the use of a rating form will insure that each of the basic points is carefully considered.

Visual illustration provides a valuable means for evaluating proposed school sites and for informing the citizens of the community as to the need for additional sites. There is little merit in wise site selection, if the voters or local governing agency will not approve the site acquisition proposal. Maps provide the most effective type of illustration, while other tools such as charts, graphs, tables, and slides are also useful. Although there is no specific number of maps required to depict clearly the particular site problems of each community, the following kinds of maps form an adaptable basis:

1. Location of School Pupils (Spot Map)
2. Location of Pre-School Children (Spot Map)
3. Location and Type of Existing Dwelling Units (Spot Map)
4. Location and Type of Proposed Housing Developments
5. Location of Existing and Proposed Major Traffic Arteries

(Concluded on page 95)

RATING FORM
for
THE SELECTION OF SCHOOL SITES

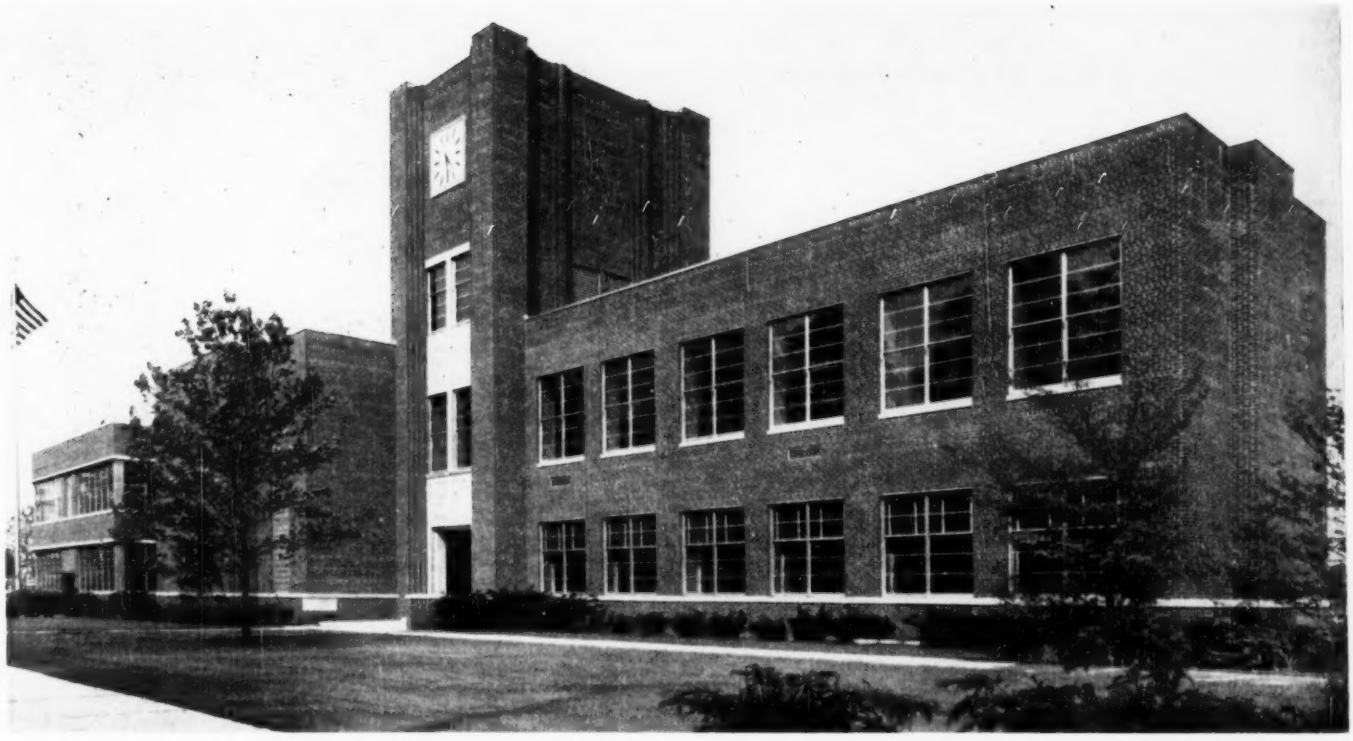
H. H. LINN, F. J. McCORMICK, D. J. LEE

INSTRUCTIONS: Score items as follows: 5 = Very Superior, 4 = Superior 3 = Average, 2 = Below Average, 1 = Poor, 0 = Very Poor. Multiply score times weight and enter result in "total" column.

BASIC CONSIDERATIONS	SCORE	WEIGHT	TOTAL	GRAND TOTAL	NOTES
I. SIZE					
1. Size		60			
2. Expansibility		20			
II. TOPOGRAPHY					
1. Elevation		10			
2. Drainage		10			
3. Soil		10			
4. Contour		10			
5. Shape		5			
6. Natural Features		3			
7. Attractiveness		2			
III. LOCATION					
1. Central Location		5			
2. Type of Neighborhood		5			
3. Zoning		5			
4. Accessibility		5			
5. Traffic Arteries		3			
6. Water Lines		3			
7. Sewers		2			
8. Electricity		2			
9. Gas Lines		1			
10. Fire Protection		2			
11. Public Transportation Fac.		2			
12. Parks and Playgrounds		2			
13. Natural Hazards		1			
14. Noise		1			
15. Odors and Dust		1			
IV. COST					
1. First Cost		10			
2. Site Development		5			
3. Building Removal		5			
4. Installation of Utilities		5			
5. Street Development		5			
GRAND TOTAL					

INSTITUTE OF FIELD STUDIES . . . TEACHERS COLLEGE . . . COLUMBIA UNIVERSITY

*Associate, The Institute of Field Studies, Teachers College, Columbia University.



Front View, Bergen County Vocational School, Hackensack, N. J. — Lawrence C. Licht, Architect, Engelwood, N. J.

Planned for the Area —

The Bergen County Vocational School

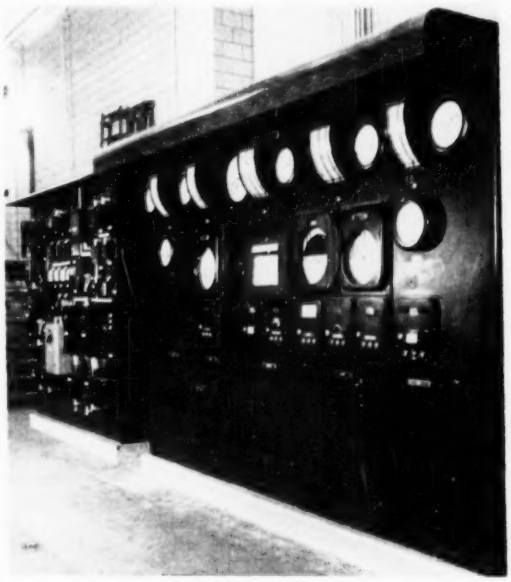
*Joseph C. Fitts**

The Bergen County Vocational and Technical High School has finished its first year of operation in a new building constructed for the purpose in Hackensack, N. J. The building shown in plan and picture is the first unit of a larger building. Twenty-one acres are available in the plot for the completed building when all units are erected, and furnished, and space is provided as well for recreation and athletics.

The present unit has a capacity of 700 pupils which will be reached in the third year of enrollment. The first year enrollment was approximately 300. The second year enrollment has already passed 500.

The school operates four grades, from ninth to twelfth inclusive. The ninth year is devoted to exploratory courses in which the pupil is given short tryout periods in various shops so that he will be enabled to choose a major occupational course for which he has shown aptitude and inclination. The other three grades, tenth to twelfth, operates on a three-year vocational program which gives the students shopwork and related instruction and which will prepare the pupils to enter industry upon being graduated from the school.

The capital outlay for the school has been met by the Board of Chosen Freeholders as a county expense. The operating expense is met by a tuition fee which is paid for the pupil by the sending district.



A large panel board with recording meters and indicators permits students to study results of various operations.

Following the established pattern of vocational education, special effort has been expended in fitting the courses to the needs of the county's industries. Bergen County (N. J.) is a rapidly expanding suburban area with several urban centers within easy commuting distance — New York, Newark, Passaic, and Paterson. In addition to the industrial plants in these cities the county itself is becoming heavily industrialized and has within its borders a wide variety of plants — metal-working, chemical, food, textile, and automotive assembly.

Because of its expansion as a residential area with the consequent importance of construction of homes and all the accompanying services, courses in the building trades have been given much attention and classes are operating in carpentry, masonry, bricklaying, plumbing, sheet-metal work, and electric wiring. In addition to the day school classes in the building trades, courses in apprentice training in the same trades are given.

Since the school was built for vocational school courses it has been possible to design the shops and place them so that they are particularly well fitted for their purpose. For instance, the two-story carpenter shop and the masonry and bricklaying shop are in the basement adjacent to a drive-in truck delivery

*Vice-President, Board of Vocational Education, County of Bergen, N. J.

FIRST FLOOR PLAN OF FIRST UNIT
SCALE

First Unit of First Floor Plan, Bergen County Vocational School, Hackensack, N. J. — Lawrence C. Licht, Architect, Englewood, N. J.

station. The two-story shop, for instance, gives ample opportunity for real house framing problems.

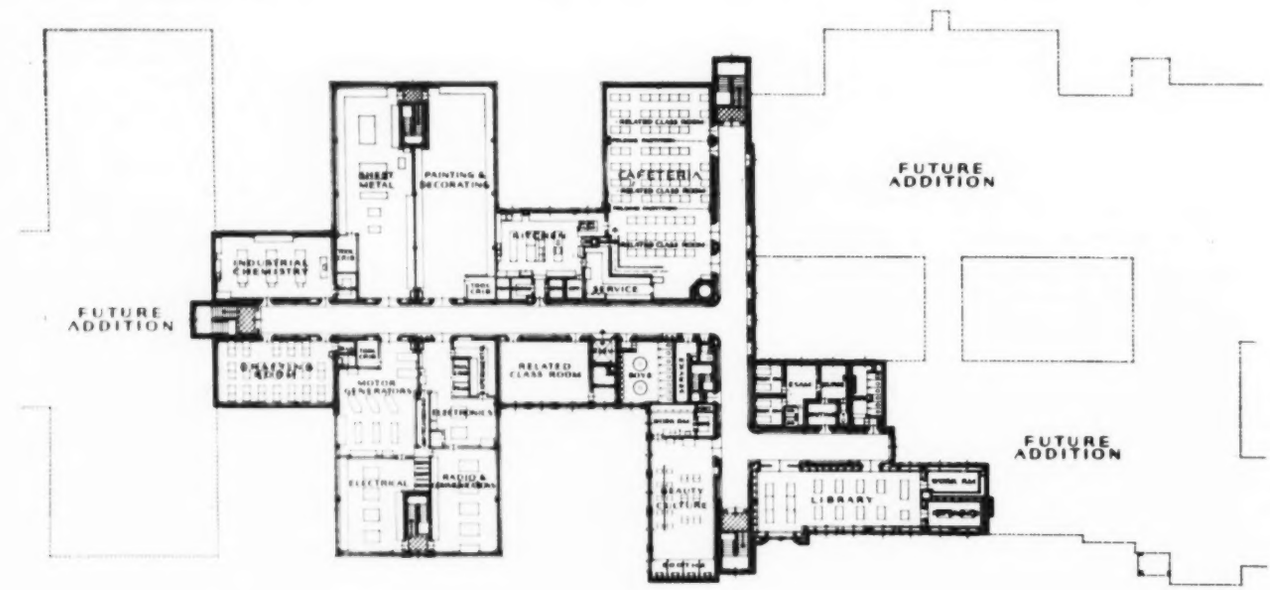
Since every suburban area has plenty of demand for service trades and food handling of various kinds, special attention has been given to this type of occupation in the school. Auto mechanics and automobile bodywork require a large force of workmen and the school desires to contribute to the training of mechanics for this work. During the present year there are five classes operating in this section of the school.

The bakers of the county requested that a school for bakers should be established. Equipment for a modern bakery was obtained and this fall a class in baking was started.

Restaurant cooking and serving has also been started in connection with the cafeteria which will in another year serve about 700 noon meals a day.

A suburban community also needs printing establishments both for its community papers and its job printing. A print shop has been equipped with linotype, job presses, automatic press, paper cutter, folder, and perforator. This well-equipped shop has two classes using it this fall and is now turning out school printing. The coming year will see the shop producing a school paper which will bring the English work into close co-ordination with the graphic-arts courses.

The county, of course, must meet its de-



SECOND FLOOR PLAN OF FIRST UNIT
SCALE

First Unit of Second Floor Plan, Bergen County Vocational School, Hackensack, N. J. — Lawrence C. Licht, Architect, Englewood, N. J.

mand for the beautification of the ladies, so a modern beauty parlor has been equipped and courses are given fitting the students to pass the state examination for work in this field.

To serve the television and radio field an electronic shop and laboratory trains boys in this field.

The courses described thus far have been primarily designed to serve the community. The needs of industry have not been neglected.

Two machine shops, one with heavy equipment and one with bench equipment, have been provided.

An industrial chemical laboratory provides means of training pupils for our ever increasing chemical industry. It is realized that the industry needs college graduates, chemists and chemical engineers, but it also needs junior technicians for a variety of routine laboratory work and such juniors can be trained in our laboratory.

A unique feature of the school is the boiler room which has been equipped as a steam laboratory. Five boilers have been installed — a hand-fired coal boiler, a stoker-fired coal boiler, two oil-fired boilers, and one gas-fired boiler.

The boilers have been so connected that they can be operated in combination or alone. Three headers are used — a high-pressure header, a medium-pressure header, and a low-pressure header. Various types of pumps have been provided so that the students can become acquainted with their construction and operation — rotary pumps and reciprocating pumps, high vacuum pumps, and feed water pumps — throughout the range of boiler room practice.

A large panel board has been provided with recording meters and indicators so that classes can study the result of different kinds of operation. The piping has been carefully marked so that the pupils can trace the different lines and see how the piping has been installed.

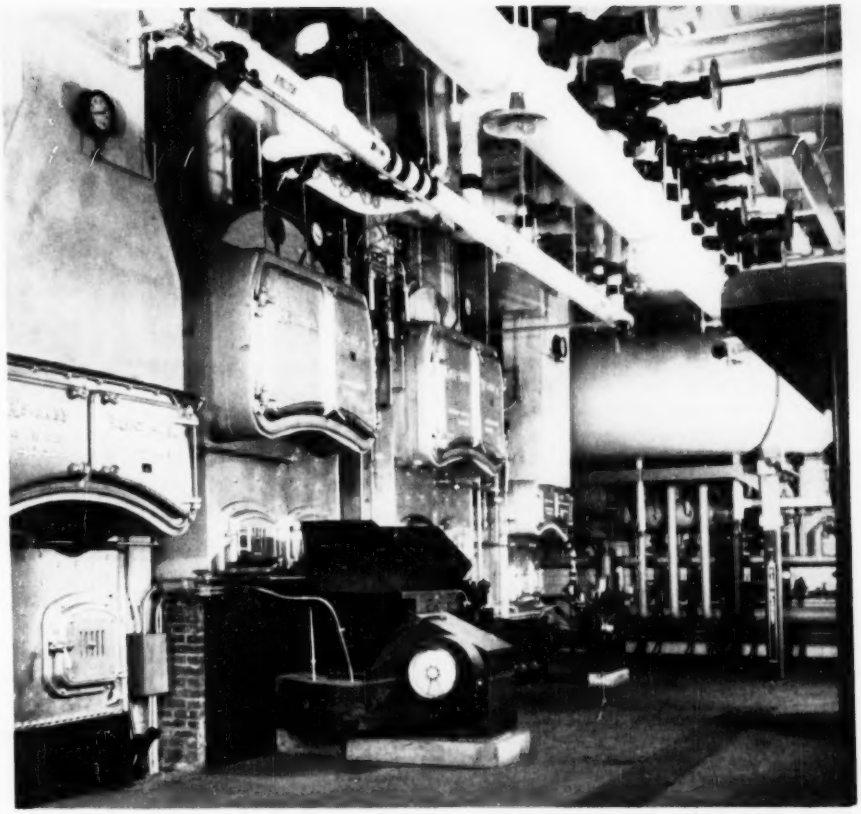
The heating system was also designed for instructional use and includes radiant panel heating, unit heaters, convectors, and free standing radiation. The boiler room supplies hot water for use throughout the building and steam for the cafeteria kitchen and serving operations. These uses give the pupils an opportunity to study distribution and use of heat as well as its production in the boiler room.

A classroom is provided on the mezzanine of the boiler room so that the engineer who may be instructing is never far from his duties of operating the plant.

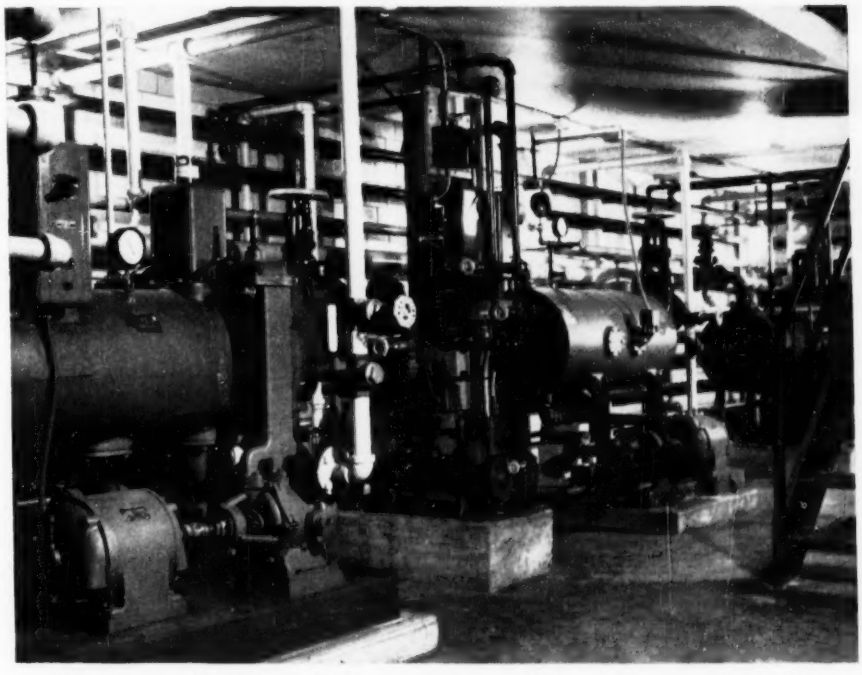
This special equipment in the boiler room will permit instruction of pipe fitters, stationery engineers, and building custodians in the care and operation of a boiler room.

That there is need for instruction of custodians was demonstrated during the past year when at the request of local school districts the vocational school instituted and operated a course for school custodians.

The school is new and the operation has not been long enough to allow for assessment of results through placement and industry reports, but from observation of the past year, all concerned — the board, the faculty, and the advisory committees — are convinced that we have developed a most useful institution which will serve Bergen County well throughout the years.



The boiler room, which is used as a laboratory, contains five boilers which may be operated separately or in combination: a hand-fired coal boiler, a stoker-fired coal boiler, two oil-fired boilers, and one gas-fired boiler.



Rotary, reciprocating, high vacuum, and feed water pumps provide students with an opportunity to study the construction and operation of pumps.

Recent Judicial Opinion XIII:

School Board Members and Construction Contractors' Bonds

*Stephen F. Roach, Ph.D.**

In these days of highly inflated costs, and with taxpayers sensitive to proposals involving increased expenditures, the task of the local school board becomes indeed a difficult one.

And of the many problems facing school boards today, probably the one of greatest concern is the provision of the best possible educational facilities for the pupils and adults of the community. The construction of new buildings and the modification of existing ones entail vast expenditures, and consequently become matters of immediate concern to both members of the school board and the taxpayers.

More Records Broken

Thus, in New York City, for example, a recent news release stated that the construction program planned by the local board for 1954 was the largest in the city's history. The plan to provide 312 new buildings and 12 new building sites involved an estimated cost of $101,000,000.

On a nationwide basis, the year 1952 saw contracts let for the construction of almost 7000 school buildings at contract costs approximating 1.6 billion dollars. And this rate (in excess of 133 million dollars per month) was far outstripped in 1953. The authoritative Dodge reports show that since May (1953), school building contracts are being let at an average monthly rate of 180 million dollars.

But the real magnitude of the building task facing American school boards becomes evident when it is realized that the 1953–54 school year enrollment figures — for students in all elementary and secondary schools — is some *two million* over the previous year. And the Office of the U. S. Commissioner of Education has estimated that the enrollment in 1960 will exceed that of 1953–54 by an additional *seven million!*

With such a herculean task facing the nation's school boards — in school construction alone — it becomes obvious that in formulating and/or implementing local building policies, board members have no choice but to be fully alert to *the legal responsibilities of such actions as they may choose to take.*

A recent case,[1] decided in the Florida Supreme Court, is illustrative of the perils inherent in actions taken by a school board which are not in conformance with the board's legal responsibilities.

Facts of the Case

The Suwannee County, Fla., board of public instruction entered into a contract for the construction of an elementary school building, but did not demand or receive from the contractor a performance bond. The contractor defaulted, and as a result, Hughes Supply Co. was unable to collect payment for materials which it had furnished and which had been used in the construction of the building.

The supply company brought suit (in a lower state court) against the chairman of the school board and the Glens Falls Co., *et al.*, — the sureties on the official bonds of all the school board members — to recover the loss. The grounds for suit was the claim that it was "the ministerial duty of the school board members . . . to require the bond"; and that failure to do so was a violation of their responsibility to "faithfully perform their duties of office." Thereby, the allegation submitted, the individual board members and their bondsmen were made liable to the Supply Company for the loss it had sustained.

The lower court rendered judgment against the Hughes Supply Co., which judgment was then appealed to the State Supreme Court.

The Issues and Findings

The issues in this case were direct and clear cut.

First — Was the school board acting lawfully when it did not require the posting of a performance bond by the contractor?

Second — In the event of a board action being declared unlawful, what is the liability of the individual board members who participated in such action?

The court first referred to an existing Florida statute, not a part of the School Code, which stipulated that persons entering into formal contracts with any public authority for the construction of a public building, "shall be required, before commencing such work, to execute the usual penal bond."

The court noted that this statute — intended to protect laborers, materialmen, and suppliers on construction contracts for public buildings — "is extremely broad in its scope. It concerns itself with all public buildings and we find nothing in the School Code to even infer that it [the non-school code statute] was not intended to apply to school buildings."

On the contrary, the opinion went on, the section of the School Code pertaining to *School Contractors* — which, in turn, required that all school contractors give bond "for the faithful performance of their contracts . . . as prescribed by law" — could, and should, be construed to include the provisions of the afore-mentioned nonschool code statute. This was so, the opinion continued, because the nonschool code statute was, in effect, the "prescribed law" with which the School Code statute required compliance.

To the claim that the nonschool code statute placed no ministerial duty on the board to require a bond from the building contractor — since it contained no specific provision to that effect — the court gave no sanction.

Nor did the court agree with the contention that the only rules and regulations by which the board was to be guided in its operations were those enumerated in the School Code of the state.

The opinion then went on: "The provision in the non-school code statutes that the bond shall be required before commencing work is patently and clearly the same as saying that the contractor does not begin work until the bond is executed, posted, and duly approved. . . . If there is any doubt as to the duty of the board in this respect, such doubt is completely dissipated by the concluding . . . sentences . . . which make it the duty of the public body [the school board] to furnish a copy of such bond to interested persons."

Therewith the opinion held that "it was the mandatory duty of the school board members to see to it that the bond required by the non-school code statute . . . was posted before work was commenced. . . ."

Since this duty was not dependent upon the judgment or discretion of the board members, but was, rather, "positively imposed by law, and its performance required at a time and in a manner, or upon conditions . . . specifically designated," the duty became a ministerial one. Accordingly, the action of the board in not requiring that the bond be posted was "a breach of its duty to faithfully perform the duties of . . . office."

Having thus disposed of the first issue, the court then turned to the second. "Whenever there is a wrong," it held, "there is a remedy. And the general test to determine whether there is liability in an action of tort, [i.e., civil wrong] is the question whether the defendant has by act or omission disregarded his duty. This applies to public officers who

*Ferris High School, Jersey City, N. J.

[1] *Warren, [for] Hughes Supply Co., Inc. v. Glens Falls Indemnity Co., et al.*, cited as 66 So. 2d 54 in the *National Reporter System*.

may become liable . . . to individuals who sustain special damages from the negligent or wrongful failure to perform imperative or ministerial duties."

In this particular case, the court held that the Hughes Co. had suffered loss because of the board's disregard of duty in not requiring that a bond be posted by the building contractor. Because of this breach of duty, the Hughes Co. now possessed the right to sue the board members individually for the damages sustained.

Therewith the lower court ruling — that the board members were not liable individually — was reversed, "for further proceedings consistent with this opinion."

Significance of the Case

The principle of fundamental significance in this case is an old one, but it bears repetition: "Board members must use due diligence in discharging their duties, particularly where rights of individuals may be jeopardized by their neglect."

Of significance to school board operations in general, it will be noted that the following principles were formulated in this opinion:

First — The School Code is not the *sole* source of duties, responsibilities, etc., with which school boards are expected to comply. Conformance is also required with all other statutes (e.g., the Non-School Code) where applicable.

Second — Negligence, or wrongful failure, on the part of a school board to perform a ministerial duty becomes a breach of the duty of the individual participating board members "to faithfully perform their duties of office."

Third — A school board duty becomes "ministerial" when it is not dependent on the judgment or discretion of the board members, but rather, is positively imposed by law (School Code or otherwise), and its performance is required at a time and in a manner, or upon conditions which are specifically designated.

Fourth — The failure of a board to perform a mandatory, ministerial duty imposes on the board members participating an individual liability, in tort, to the persons who suffer loss by such failure to act.

Of particular significance to board operations involving contractor performance bonds are the following principles:

First — In the absence of anything to the contrary in the School Code, a nonschool code statute relating to bonds required of contractors constructing *public* buildings, applies to *school* buildings.

Second — A School Code statute relating to school contractors, and bonds required to be given by them, will be construed to include a nonschool code statute relating to bonds of contractors constructing public buildings.

And finally — A statutory provision requiring *school contractors* to furnish boards of education with performance bonds will not be construed to permit a *school board* to forego taking the necessary positive action to obtain the bond; particularly when the provision also makes it a duty of the board to furnish copies of such bonds to interested persons.

Necessary Elements in —

A Science Room Design FOR THE SMALL SCHOOL

Herbert A. Smith and Robert E. Cook

The provision of adequate facilities for high school science instruction has always been a problem. Many different plans have been proposed and tried under school operating conditions. None of them have been preeminently satisfactory. Presumably in larger schools it has been possible to nearly meet the need for adequate facilities for science instruction because of the possibility of some specialization of rooms. In the small school even this mitigating circumstance is absent. For the purpose of this discussion a small high school is defined as one enrolling fewer than 300 students. This group comprises roughly 75 per cent of the high schools in the United States.[1] This arbitrary limit is chosen because it represents the point at which more than one science teacher is likely to be required, thus permitting some specialization of rooms and teacher assignments. Up to or near this limit it is probable that all the science instruction can be accommodated in a single room. For reasons more fully described below this seems to be a better arrangement than the attempt to use two or more rooms for science instruction in small schools.

In spite of the perplexing problems associated with adequate science room design, research studies related to this area are meager. Few studies approaching the problem comprehensively, especially from the small school point of view, seem to have been made. Valuable investigations were made and reported by Monahan,[2] Mattern,[3] and Jensen and Glenn,[4] but these studies were conducted more than a score of years ago. Recently, an excellent monograph prepared under the auspices of the United States Office of Education has been published.[5] It has contributed some very valuable suggestions and states some principles which are basic to the development of adequate science facilities. However, additional research is urgently needed. Education is not a static process, and if the axiom that educational programs should determine the nature of the facilities, and not the reverse, is to be followed, then more extensive research aimed at developing a design adequate to accommodate developmental programs of instruction should be a continuing process. The adverse effect of the present lag in science-room design behind the modern concept of science education has been forcefully stated by Rarick and Read as follows:

> There is almost no hope of implementing a modern program of science education like that which has been proposed . . . without some alteration pointed toward a new and adequate physical plant. As the science rooms are set up in most schools they are the limiting factor in the program. They are designed for the most part for a science program that is already poorly attended by pupils who do not intend to go to college . . . and is nonfuctional for those who do go to college.[6]

It has been a tacit assumption in education that the quality of educational experiences is conditioned by the physical aspects of the

[1] United States Office of Education, *Statistical Summary of Education*, Biennial Survey of Education in the United States (Washington: Government Printing Office, 1950), Chapter 5.

[2] A. C. Monahan, *Laboratory Layouts for the High School Sciences*, Bureau of Education, Bulletin No. 22 (Washington, D. C.: Department of the Interior, 1927), pp. 1-31.

[3] E. W. Mattern, "High School Laboratories for Chemistry," *Report of the National Research Council Commission on Construction and Equipment of Chemical Laboratories* (New York: Chemical Foundation Incorporated, 1930).

[4] J. H. Jensen and Earl R. Glenn, "An Investigation of Types of Classrooms for Chemistry and Other High School Sciences in Small High Schools," *Journal of Chemical Education*, 6, Part I (Apr., 1929), pp. 634-664.

[5] Philip G. Johnson, "*Science Facilities for Secondary Schools*," Misc. No. 17, United States Office of Education (Washington, D. C.: Government Printing Office, 1952).

[6] Lawrence Rarick and John G. Read, "Criteria for Evaluating a Secondary School Science Program," *Educational Administration and Supervision*, 36 (May, 1950), p. 310.

classroom. It is indeed remarkable that research evidence bearing on this point is virtually nonexistent. Nonetheless, continuous effort is made to improve the educational facilities, and to provide more aesthetically satisfying classroom environments.

Provisions for adequate instructional facilities for science in the small school is a difficult problem. School administrators and boards of education are extremely sensitive to the cost of modern construction. Facilities required for science are costly and duplication of facilities and services in two or more rooms when one room would suffice is doubtful wisdom. Under the press of increasing enrollments, administrators are rightfully concerned with per cent of room utilization. The provision of two or more science rooms in the small school would require some costly duplications, and it would almost certainly mean classes in nonscience subjects would have to be assigned to the rooms during part of the day. As a reasonable alternative to this, it seems possible to provide a single room adequately equipped for instruction in general science, biology, physics, chemistry, advanced physical science and other high school science. In all but the smallest schools this might permit the use of the room for science classes only and thus avoid the difficulty, so frequently encountered with nonscience classes, of student meddling with equipment, demonstration materials, gas and water outlets, etc. It might even give the science teacher a free period during the day in which to use the room to repair equipment, set up demonstrations, and handle numerous other chores associated with science teaching.

The design of a room which would satisfactorily accommodate instruction in the sciences normally taught in the small high school was the problem undertaken by one of the coauthors of this report in a recent investigation.[1] The design suggested is an outgrowth of this study and is the result of three different kinds of activity. (1) Criticisms and suggestions of experienced teachers active in the field were sought. These teachers were interviewed in their classrooms and an extensive analysis was made of the facilities provided by each local school. (2) An exhaustive search was made in the literature to glean specific recommendations and suggestions of experts in the fields of science education and school buildings. (3) The opinions of manufacturers of school furniture were obtained and the availability of satisfactory laboratory furniture was determined. The design submitted represents a synthesis of information, ideas, and opinions garnered from the various sources.

The design provides much more flexibility than the usual science classroom. The provision for individual student work, class demonstrations, recitations, and written work are adequate for each type of activity, and none have been provided for at the expense of the others. Provision for separation of chemical supplies from other equipment has been achieved. The chemical storeroom doubles as a darkroom. The other small room has ample storage space for other equipment and provides a desk for the teacher, a utility which is badly needed. The science teacher has frequently found the demonstration desk to be the only place for keeping grade books, papers, school bulletins, and other accouterments of teaching — a notably unsatisfactory arrangement. Details of the design are given in the legend accompanying the Plate. The science suite suggested is not excessive in its space demands. The dimensions are such that the suite can be easily introduced into the normal pattern of classrooms designed by architects.

All Purpose Science Classroom-Laboratory Suite

I. Classroom Laboratory
- A. 22" x 35" — 4 cabinet steel base units (light colored acid resistant tops)
- B. 6' x 30" — movable library tables (Formica tops)
- C. Auxiliary demonstration table on casters (doubles for projector cart)
- D. 8' x 30" demonstration table
- E. Table height fume receiver
- F. Sink
- G. Aquarium on base unit
- H. Growing bin on base unit
- J. Display cabinet
- K. Bulletin board
- L. Notebook cabinet
- M. Key cabinet

II. Office-Project-Preparation-Storage-Conference Room
- A. Three-tier steel file case
- B. Desk
- C. Work shelf, book storage overhead
- D. Work bench
- E. Tool cabinet, book storage overhead
- F. Sink, pegboard overhead
- G.–H. Two-tier storage cabinets
- J. Wardrobe
- K. Remote control master controls for services
- L. Sliding door, light tight
- M. Unidirectional mirror

III. Darkroom
- A. Two-tier chemical storage cabinet
- B. Developing table

The science classroom has frequently been the dingiest room in the school. The black tops of laboratory tables and the demonstration desk, as well as the traditional blackboards, have made effective light control difficult if not impossible. Because it facilitates room darkening for the use of visual aids, and further because it is more likely to fit into usual patterns of school construction in the small school, the design presented here assumes unilateral natural lighting along one entire side of the room, adequately supplemented by artificial lighting. Light-colored acid-resistant table tops have been specified. It has been assumed that modern practices relative to the use of chalkboard and paints with high reflection factors appropriate to their uses will be followed. Favorable contrast ratios can be achieved by the use of pastel colors and a careful choice of laboratory light sources. Intensity of illumination should be from 25 to 35 foot-candles at the working surface. Lighting the office-storeroom may follow the same general pattern. Special lighting of the instructor's desk is recommended.

No doubt there are numerous ways in which the various aspects of science room planning may be combined to obtain a functional design. It is almost certainly true that no single solution would be thoroughly satisfactory to every science teacher or adapted to all situations. Finally, it is clearly recognized, that other individuals would be extremely unlikely to present the same solution to the problem in view of the complexity of the task and the difficulty of reducing all factors to the point where they can be adequately measured. Irrespective of these facts there remains the strong conviction that adoption of the design presented would be a vast improvement over the present science facilities in most small schools.

[1]Robert E. Cook, "A Suggested Science Room Design for Nebraska Schools," (unpublished M.A. thesis, Department of Secondary Education, University of Nebraska, 1953).

THAT NEW SCHOOLHOUSE

At a convention of the Connecticut School Administrators, Vernon Hays quoted the following lines as expressing the results of a lack of forethought of school authorities in communities where enrollments are increasing:

"Still on it creeps,
Each little moment at another's heels,
Till hours, days, years, and ages are made up
Of such small parts as these, and men look back
Worn and bewildered, wondering how it is"

that no schools have been built.

Front View, Stuart R. Bradley Elementary School, New Orleans, La. — I. William Ricciuti & Herbert A. Benson, Architects, New Orleans.

In the New Orleans Flavor —

The Bradley Elementary School

*James F. Redmond**

Completion of the strikingly new Stuart Bradley Elementary School at Humanity and St. Roch Streets — third of the postwar public schools — is announced by the Orleans Parish School Board. It was opened in September, 1953.

The $708,000 structure was designed by I. William Ricciuti and Herbert A. Benson. It has 18 classrooms, a 300-seat dining room, a multi-purpose wing, and other features.

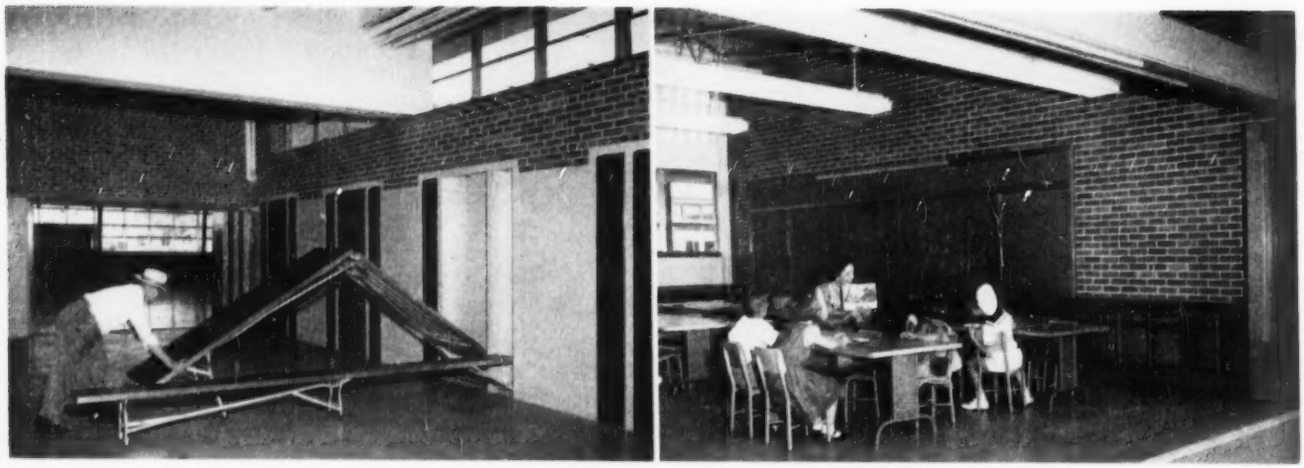
Completely modern, its common facilities are housed in a central wing from which two classroom wings project. Kindergarten, first-, second-, and third-grade rooms are at ground level, with a second-story level for the fourth, fifth, and sixth grades made necessary by site limitations.

According to the architects, these are the principal points of interest: The design has a New Orleans flavor, utilizing broad overhangs to provide shelter from sun and rain; open corridors and galleries; large window areas and accordion-fold glass doors that open on to landscaped grounds.

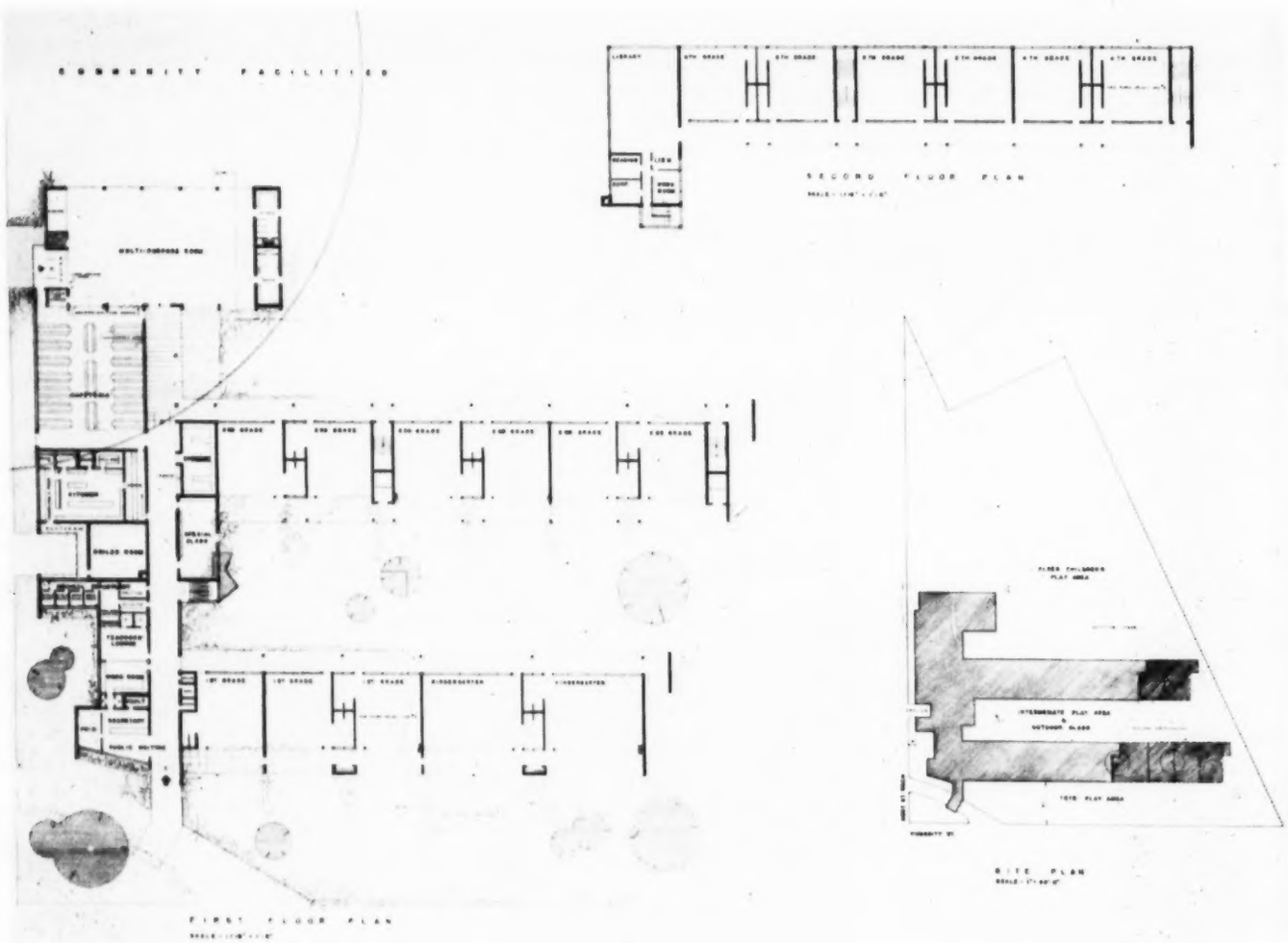
Each classroom has cross ventilation; bilateral natural light; scientifically planned fluorescent artificial lighting; radiant (warm floor) heating, individual built-in lockers for each pupil, and a separate adjoining rest room for each classroom.

*Superintendent of Schools, New Orleans, La.

An open corridor on the north side of the building; continuous strips of glass blocks have been used to combat glare.



Left: *The cafeteria is transformed into a rainy-day playroom by folding the tables and benches into the wall.* Right: *Foldaway glass walls give a pleasant indoors-outdoors feeling.*



Floor and Site Plans, Stuart R. Bradley Elementary School, New Orleans, La. — I. William Ricciuti & Herbert A. Benson, Architects, New Orleans

Left: *The large bank of windows adjacent to the entrance is the front wall of the public waiting room and receptionist area.* Right: *A wall of glass sections brings a full view of the courtyard into the first floor special-purpose classroom and the second floor library.*

The projecting wings form completely separate play areas for each age group — kindergarten and first grade nearest the front; second and third grades in the middle; fourth, fifth, and sixth grades at the rear in the largest space. For the smaller children, plantings will divide the yards into small areas for play or tree-shaded outdoor classes.

Notable is the provision of multi-purpose space for use by the school, by the New Orleans Recreation Department, and by neighborhood civic clubs. Tables and seats in the cafeteria are arranged to fold quickly into the wall, leaving a rainy-day playroom, an auditorium or meeting room which can be used independently of the rest of the school.

In addition, there is a gymnasium-auditorium with separate access from the street (including a foyer and ticket window) which is also convenient to the adjoining *Nord* playground. Locker and shower rooms, plus a collapsible stage have been provided.

Of interest is the scaling of as many objects as feasible to the size of the children using them. Blackboards, clothes and book storage lockers, lavatories, toilets, drinking fountains, counter tops, doorknobs, and other items vary in height or size according to the three separate age groups — kindergarten and first grade; second and third grades; and fourth, fifth, and sixth grades.

A distinctive feature of the school is a two-story, light-filled glass tower enclosing a stairway leading from the central wing to the library. Instead of a tall smokestack, the school has a relatively low, rectangular chimney of modern design.

The School Facilities

Entrance is by means of a curving driveway that enables cars and buses to discharge or take on passengers from beneath a long canopy, an important consideration on rainy days.

First to be reached is a public waiting area with the principal's office at the left. Down the light-filled corridor is the teachers' lounge. This is subdivided by a folding wall partition into a workroom and lounge room. It also has a kitchenette, with built-in refrigerator and range unit.

Next is the health clinic, with a doctor's office and examination rooms, where inoculations and examinations can be given. Then there is a service inset for trucks, with a loading platform leading to the kitchen.

The kitchen is an airy, spotless facility with gleaming cabinets, counter tops, ranges, kettles, and other devices of stainless steel. Dishwashing will be by mechanical means. Designed for cafeteria-type service, it is screened somewhat from the serving line.

The adjoining dining hall, seating 300, has tables and benches which fold quickly out of sight into the wall, clearing the room for other uses. This room in turn connects, by a foyer, with the gymnasium-auditorium, another multi-purpose area.

This space, approximately 75 by 35 feet, has a high ceiling and a hardwood maple floor. There are also a storage area and shower room facilities.

Coming off the center wing, which parallels St. Roch St., are the two classroom wings. Nearest to and parallel with Humanity St. is the kindergarten-first grade wing, which has been afforded privacy from the street by a planting screen.

The Classroom Wings

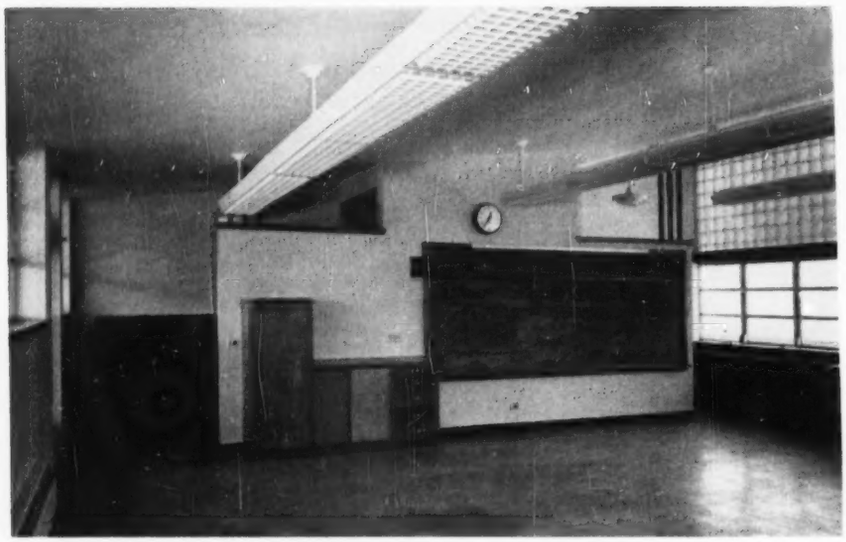
This wing has two kindergarten and three first-grade rooms. On the south side, facing the prevailing breeze, are walls composed of accordion-fold glass doors, which can be swung back completely in mild weather.

Each of the classrooms for tots has built-in individual clothes and book-storage lockers at the child's level. There is also counter-top work space. Back of one wall, and forming an integral part of the classroom, is a utility room containing miniature-sized toilets and lavatories.

An open corridor, sheltered by a broad overhang, serves the north side of this wing. Aluminum awning type windows are used generously in the north wall, and above the corridor roof, clerestories allow natural light to flow into the classrooms. Facing the courtyard between the classroom wings is a glass-walled room for special classes, which looks out over a shallow fishpond. The room is planned for nature study, music appreciation, and other special activities.

The two-story wing has three second-grade and three third-grade classrooms at ground level, each of which has accordion-fold doors opening into the courtyard. Classroom facilities are similar to those of the other wing, except that the size and height of objects is scaled for children of these grades.

Stairways lead to the upper story, which



A typical classroom; integral restrooms are behind the wall section containing the chalkboard.

has six classrooms — two each for the fourth, fifth, and sixth grades. A broad gallery, protected by railings and sheltered by a wide overhang, serves as an open corridor for these rooms. The scaling of lockers, rest-room fixtures, and other objects in these rooms is for the oldest age group.

At one end of the second-story wing, nearest the other facilities, is the library, with its pleasant interior of exposed brick walls, natural cypress wood trim and extensive glass areas. Beside the reading room there is a check-out desk, a book repair shop, and a small conference room. To store the large number of books used in the school, a shelf-lined storage room has been included at ground level in the two-story wing.

Structural Information

The school is built on a triangular site that is part of Union Park playground. The foundation is a reinforced concrete slab, supported by pilings and footings. The frame is of steel, with masonry and glass curtain walls, steel-bar joists and structural-roof panels covered by composition and heat reflecting white marble chips.

Windows are of the aluminum awning type, with glass block used on the north exposure for reducing glare. Fluorescent lighting has been calculated to provide the optimum of 30 foot-candles for each desk.

The school was planned for easy expansion; in fact bids have been advertised to add a double classroom unit to the kindergarten wing and a double classroom unit to each level of the two-story wing, plus an additional stairway.

The existing school has 43,256 square feet of space, apportioned as follows: first grade and kindergarten wing, 6400; second- and third-grade area, 7822; fourth through sixth plus library, 9344; multi-purpose space, 6301; administrative area, 2522; closed corridors, 2688; open corridors, 4015.

Much of the school site has the benefit of large shade trees, which have been carefully preserved. The landscaping plan, which was included in the contract, calls for gum trees or other shade-producing evergreens to be planted at key points in the grounds.

A Boom Town Fights Back

Donald D. Woodington and George T. Blumenson***

Fifty men and women gathered in a Richmond, Calif., school auditorium back in January, 1952, and faced some brutal facts.

They had been called together by Dr. George D. Miner, Richmond city superintendent of schools, to face these facts which were going to cost them money. The fifty people who sat and listened to the facts as presented by the superintendent represented all walks of life — bankers, union leaders, professional men, housewives, and others. And as Dr. Miner spoke to them, many of their minds went back slightly over a decade.

On December 7, 1941, Richmond, Calif., was a sleepy town of 20,000 inhabitants located northeast of San Francisco, across the bay in Contra Costa County. Richmond's main industries consisted of oil refineries, the Pullman Company repair shops, the Santa Fe freight terminus, a Ford Motor Company assembly plant, the Rheem Manufacturing Company, and the American Radiator and Standard Sanitary Corporation.

On December 7, 1941, Richmond had a school population of 6400 elementary and secondary pupils in its eleven elementary and five secondary schools, including an evening high school.

In January, 1952, Richmond was a sprawling, bustling community of 100,000 persons, California's ninth largest city, and the city which, according to Bureau of the Census reports, led the nation in growth during the previous decade for cities of more than 25,000 population. Richmond, in 10 years, had grown 319 per cent, and its principal industries were still the same as they were in 1941.

In January, 1952, however, Richmond's 19 elementary schools and six secondary schools had an enrollment of 31,000 and the city had the dubious distinction of having led the nation in school-population growth for cities of more than 25,000 over the past decade. Richmond's public schools had increased in enrollment 484 per cent during that time.

The Problems

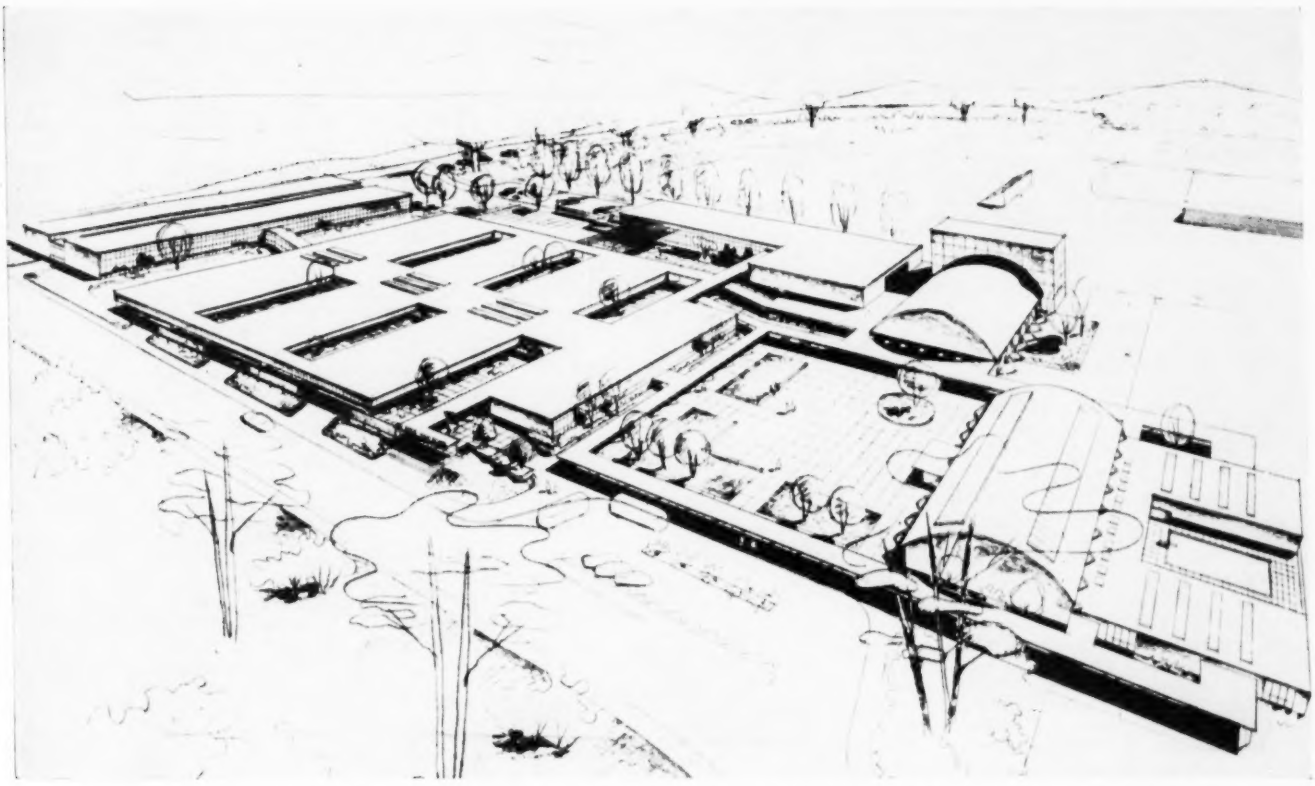
Dr. Miner told the assembled citizens about youngsters who had never attended elementary schools except in double session classes; of secondary schools so overcrowded that three lunch periods were necessary; of classes filled far over their normal capacity.

And as he continued to speak, many of the assembled group thought to themselves: "We've helped. In 1946 we voted to double our secondary-school-district tax. We voted to maintain the same tax rate for an additional 10 year period in 1951. In 1948 we bonded ourselves to capacity, with a combined bond issue of $8,000,000. What does this man want of us now?"

But the superintendent of schools went right on hitting the group with fact after fact. And when he finished, a discussion was held, a discussion that continued until 11 p.m. And when the discussion was over, J. O.

*Director of Schoolhouse Planning, Richmond Public Schools.

**Director of Publications, Richmond Public Schools.



Architect's Perspective, De Anza Junior-Senior High School, Richmond, Calif. — John Carl Warnecke, Architect, San Francisco, Calif.

Hubbard, merchant and civic leader, who had been elected spokesman for the group — which later that evening decided to call itself "The Citizens' Committee for Better Education" — asked Dr. Miner what the schools needed.

After listening intently while the superintendent outlined a proposed program, the committee again held an open discussion. Result: Richmond's "Citizens' Committee for Better Education" appeared before the boards of education of the Richmond schools two weeks later and petitioned the boards to permit the people to vote on a $12,000,000 bond issue with which to build new schools.

The amazing fact about this petition is that it came from a group of citizens, most of whom had never met each other before their gathering in Lincoln School Auditorium. The petition did not go from the board to the people, or from the superintendent to the people. Here was democracy in action. The people utilized their right of petition in order to obtain for the children of the community a better education.

Bonding to 1960!

And on March 18, 1952, by a vote of almost 8 to 1, the residents of the Richmond School Districts voted to bond themselves to the legal limit until 1960! Because of California state law, which provides that no district can be bonded to more than five per cent of its assessed valuation, bonds were approved which could not be sold until outstanding bonds have been retired! But the people understood and approved the long range plans of the school department. They had approved the surveys of school population, and of population shifts. They agreed that more schools needed to be built if their children were to receive their birthright as Americans — a good education.

And that became the motto, the slogan, the rallying cry of this campaign: "Give Them Their Birthright — An American Education."

Suffice to say that the campaign was actually a grass-roots type of movement. Committee members gave dozens of talks. Money was raised and spent on advertising, direct mail, and other types of appeals. And when the dust had settled, the committee heaved a large sigh of relief and believed that it could go its individual ways.

But the Richmond school boards, Dr. Miner, and some of the committee members saw that democracy in action could accomplish miracles — and out of that realization and out of the "Citizens' Committee for Better Education" evolved a second committee, composed of members of the first committee who had become deeply interested in the workings of the schools.

The Advisory Committee

The second committee, "The General Steering Committee for Schoolhouse Construction" continues to function to this day. Individual members argue among themselves, and the committee as a whole gets into some hot discussions with the school administration. But no offense is taken, for both the committee and the school administration have the same objectives — the best possible education for the children of their school districts.

The General Steering Committee for Schoolhouse Construction meets once a month, and the agendas for the meetings are usually three or four points. The meetings are lengthy, for the items on the agenda are discussed thoroughly; experts are called in to explain all facets of the items in question; viewpoints are expressed from the floor.

Committees and representatives of individual schools, PTA units, and Dad's Clubs are heard from at the Steering Committee meetings, explaining problems at their schools, asking for facilities such as multi-purpose rooms, additional lavatories, cafeterias, etc.

Among the things discussed are earthquake proofing of schools built before 1933 to make them conform to California's Field Act, which was passed in that year; population shifts and trends, with an eye to future school construction; approval of new school construction plans; availability or purchase of school sites; location of sites; priorities for building the schools approved at the time of the $12,000,000 bond issue; co-operating with teachers and administrators to determine what factors in new construction they believe will make more efficient teachers out of them. Recommendations are then made to the school boards, who cannot delegate their authority to any group.

The recent big project taken in hand by the General Steering Committee has been

the De Anza Junior-Senior High School, to be built with funds from the last bond issue, and with federal assistance under Public Law 815.

The De Anza Story

De Anza was originally slated to be built in an area at the north central portion of the school district, where home construction was slow, but steady, and where the committee realized growth would continue until the area was eventually completely filled with homes.

Committee members, members of the administrative staff, the boards of education, and Donald Woodington, director of schoolhouse planning for the Richmond Public Schools, spent their week ends surveying the area in and around the town of El Sobrante, looking for a site. They finally approved a 52-acre site, about a mile-and-a-half off the main highway, in an area where no homes had been built. A recommendation went to the high school board of trustees, and the site was purchased.

One of the reasons for selecting this site was that by the time homes started going up in that locality, it was hoped the school would be finished and ready to accommodate the youngsters who would be living there.

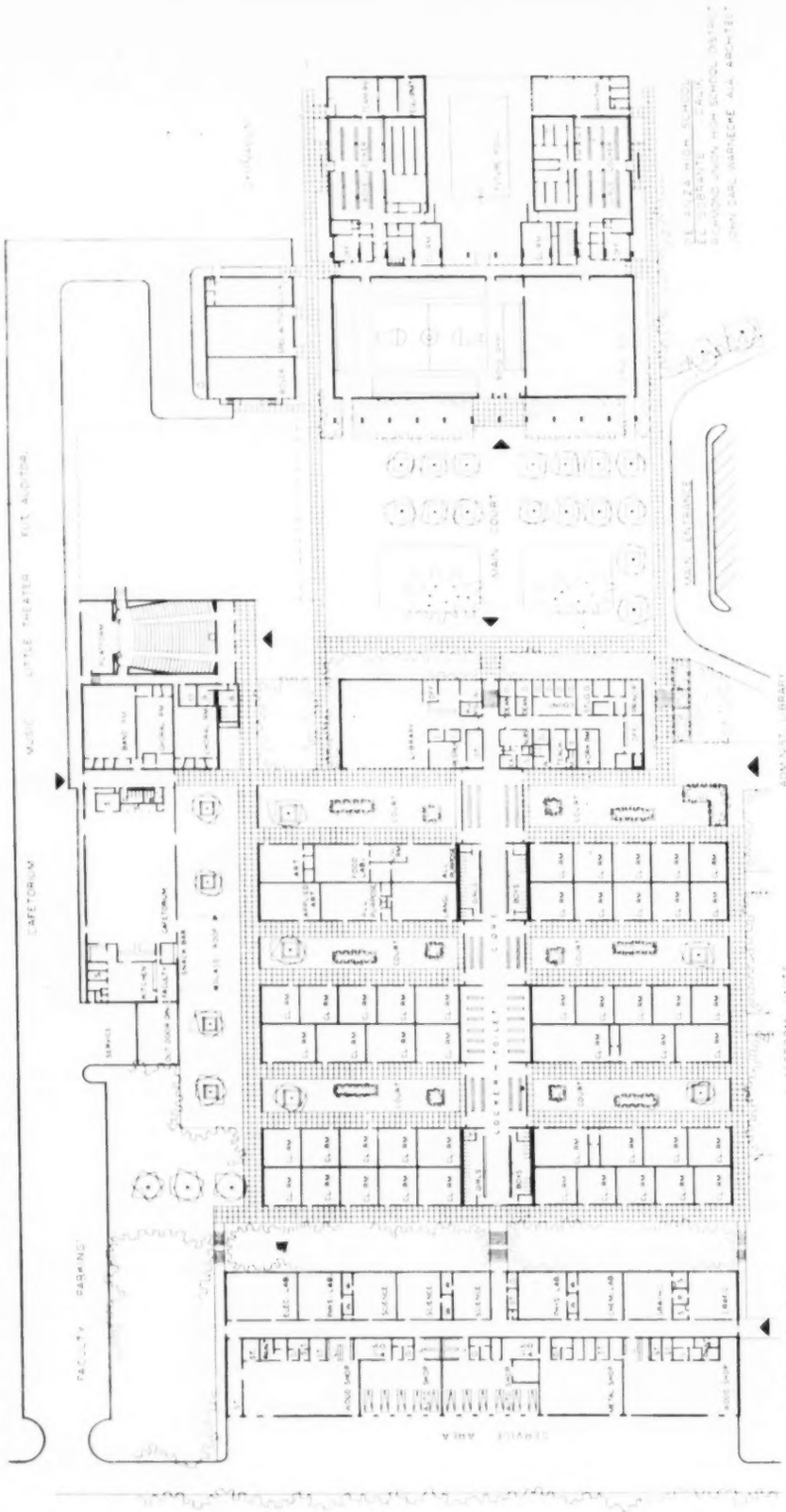
But less than three months after the site had been selected, the Utah Construction Company announced plans for a 1500 home subdivision directly across from De Anza Junior-Senior high. This necessitated a change in the timetable for construction of new schools, which had been adopted by the high school board of trustees. In addition to De Anza, priorities had been assigned to two other junior high schools, as well as to additions to three existing junior highs, and to two high schools.

At this point in the De Anza story, a Fairy Godmother, in the person of Public Law 815, waved her wand, and the district, hard hit by wartime and postwar growth because of federal installations, received word that $1,650,000 would be granted by the Federal Government toward the building of De Anza.

Immediately, the General Steering Committee swung into action. The board of trustees of the Richmond Union High School District had, by this time, appointed an architect for the De Anza job. John Carl Warnecke, a San Francisco architect, had already built Mira Vista elementary school and Portola junior high for the Richmond Schools, both of which have received awards in national competitions. The trustees knew from experience that Warnecke would build a completely functional, beautiful, and yet economical structure. So, meetings between committees of teachers and administrators, Steering Committee members, and representatives of the architect's firm were set up.

Warnecke explained to the General Steering Committee and its guests what ideas he had in mind concerning the De Anza project. The committee told Warnecke what they would like to see done with the 52-acre site. Science teachers suggested types of labs to be built; home-economics teachers outlined the types of rooms in which they would like to work; art teachers, shop teachers, and other special subject instructors did the same.

Physical education instructors met in a special committee, drew up plans for an ideal gymnasium, and conferred with the commit-



Floor and Plot Plan, De Anza Junior-Senior High School, Richmond, Calif. — John Carl Warnecke, Architect, San Francisco, Calif.

tee. Result: Compromise which left the Steering Committee, the teachers, and the architect happy.

Site development was then discussed, and placement of the school on the site was decided in a series of special meetings. Warnecke then submitted preliminary plans to the board of trustees, which carried with them a recommendation from the Steering Committee that they be approved.

At this writing De Anza Junior-Senior High School is under construction.

Industrial Support

Many long-time educational objectives have been accomplished during the evolution of this Steering Committee. While school bond issues and tax rate increases were failing in neighboring school districts, it was the impetus given to the Richmond School Districts' bond and tax increase elections by a group of noneducators, many of them without children in the schools, that put these issues across. The picture of some of the area's largest taxpayers — "The Richmond Independent," to name one, whose publisher, Warren Brown, a member of the elementary school board, threw the complete support of his paper, the largest in the area, completely behind the election — going all out with financial campaign contributions, moral support, and exhortations in plant papers for workers to vote "Yes" was a strange one.

Business and industry became partners with the schools in this effort, for they were able to understand for the first time some of the school problems.

Standard School Plans

The question of standard school plans has come up time and again before the General Steering Committee, and the problems connected with such a practice has been explained to the committee by local architects, who have shown, graphically, why such a practice would not save money for the school district. Out of these discussions on the use of standard school plans, however, there has come one small money saving plan. When possible, because of the similarity of sites for certain elementary schools, some architects have agreed to use plans already drawn by them in the past for other schools in the district. By adapting these plans for the second site, the architects will cut 1 or 2 per cent from their fees.

The committee members, many of whom are businessmen, want to know the whys and wherefores of school construction. They ask questions, and demand logical answers. "Why multi-purpose rooms?" was one frequently asked question. After hearing the school department's reasons, the committee approved such construction in new elementary schools, realizing that these rooms take the place of gymnasiums, cafeterias, and auditoriums under an economy construction program.

All actions taken by the board of education of the Richmond Elementary School District and by the board of trustees of the Richmond Union High School District pertaining to school construction, selection of architects, purchase or sale of land, assignment of architects, et cetera, are reviewed and discussed by the General Steering Committee. If either or both boards have not acted favorably on the recommendations submitted by the committee, the reasons for the boards' actions are explained. In most cases the committee accepts the reasons for the rejection of its recommendations, and in other cases the committee restudies the problems concerned and sometimes requests the boards to reconsider their decisions.

Portable Classrooms

Because some 37,000 residents of the Richmond School Districts reside in Federal Public Housing slated for demolition during the next few years, it was suggested by M. M. Snodgrass, elementary board member and member of the General Steering Committee that 25 per cent of all future elementary school building be constructed on a "portable" basis, which would enable the school department to move these classrooms to other sites when needed.

In this suggestion, Snodgrass had the support of Dr. Miner, and the committee suggested that the school department work out a standard portable-type classroom. Don Woodington, director of schoolhouse planning, together with the committee and architect Donald Hardison, designed such a portable which can be built for $10 per square foot, and which is very attractive. A feature of this building is that a series can be built, side by side, and the results cannot be distinguished from a "permanent" school. If necessary, any of the single rooms can be moved to another site.

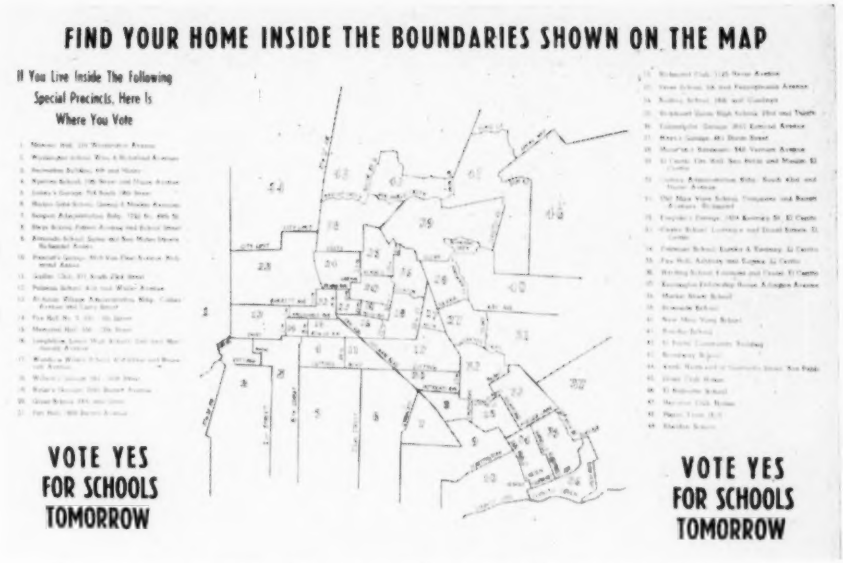
In Conclusion

Both the community and the school department have benefited greatly from the co-operation between lay citizens and school officials. The General Steering Committee now offsets adverse criticism leveled at the schools, and the school department feels fortunate in having a representative group of citizens to advise it on construction matters.

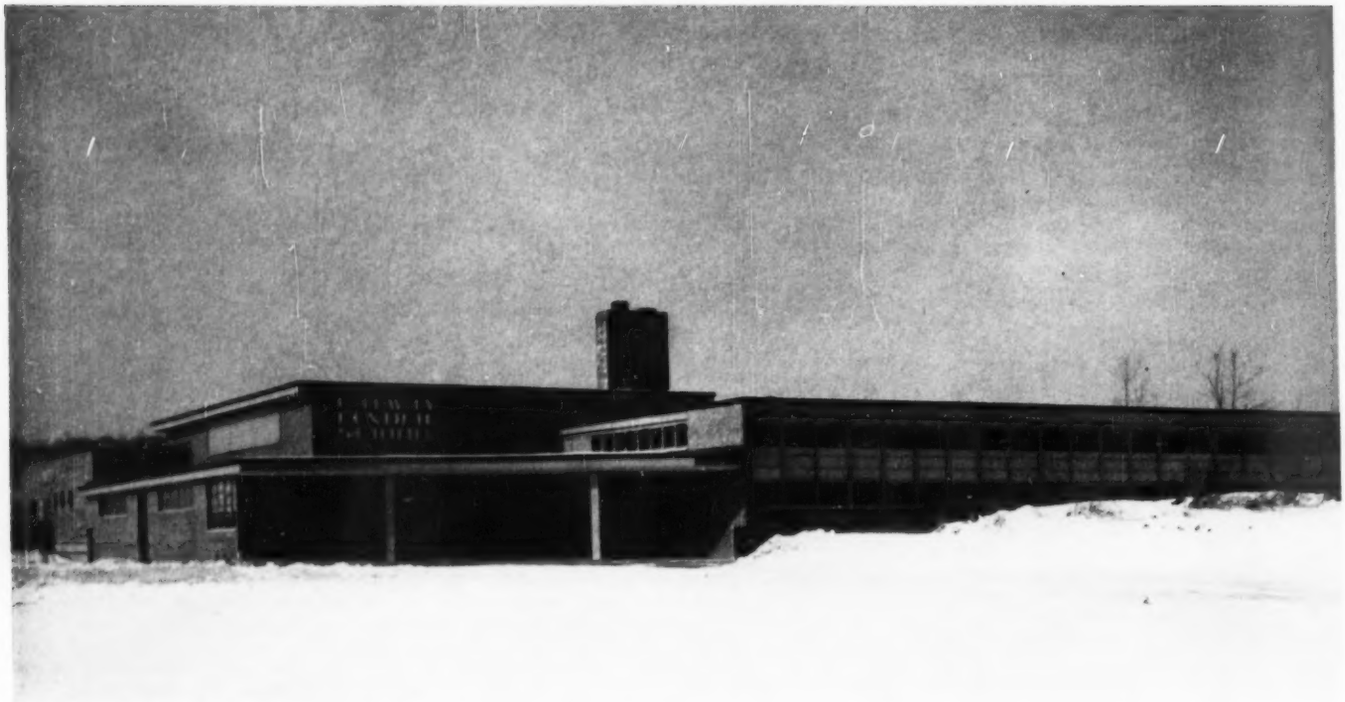
The entire experience — from the first meeting at which the problems were explained, through the bond campaign, the adoption of a construction timetable, decisions on how the bond money was to be spent, and to the approval of preliminary plans for De Anza Junior-Senior High School — has been gratifying for everyone concerned.

One major conclusion has come out of this entire experience: If the schools need something done, it is the public that can get it done, providing the schools will let the public in on its problems from the very start.

Great attention to the campaign was attracted by a full-page newspaper ad, run for one week prior to the election, carrying the Citizens' Committee message into more than 80 per cent of the local homes.



Center spread effect of brochure distributed during $12 million Richmond school bond election campaign; contained map of school district with precinct boundaries marked, and a list of 29 special election districts.



Main Entrance, Galway Central School, Galway, N. Y. — Ryder & Link, Architects, Schenectady, N. Y.

A Rural School —

THE GALWAY CENTRAL SCHOOL

*Michael T. Griffin**

The Galway Central School District in east-central New York State consists of about 120 square miles of farm land and wood land, divided up among eight towns in four different counties. It is 16 miles north of the industrial city of Schenectady. Prior to the formation of the central school district, the area included 21 common school districts and a union free district. At the time of centralization, nine of the common school districts maintained their own secondary schools, and the balance had been contracting with the Galway Union Free School and with other neighboring high schools for the education of high school children. Tax rates varied from nothing to $60 per thousand of assessed valuation. The Union Free School, located in the village of Galway, was built in 1905, with an addition erected in 1927. The old building had a total pupil capacity of about 150, the overflow being distributed among the churches, in the town barn, and in rented rooms. Needless to say, all of the one-room school buildings were substandard; many of them lacked indoor toilet facilities; only one building outside of the high school had running water. One of the common schools had no electricity. Some had been built before the Civil War.

*Principal of Galway Central School.

The district lies in an area bounded by Saratoga Springs, Broadalbin, Ballston Spa, Burnt Hills, Scotia, Amsterdam, and Perth, all of which schools had accepted some of the central district's high school students. The possibility of a central district in the area was first explored in 1934, by the principal of the Union Free School. In 1941–42, a committee of the PTA worked hard to secure the acceptance of centralization, but because of the war, action on the project was halted before a vote could be held. Following the war, the PTA restudied the problem with the members of the board of education of the Union Free School and the trustees of the common school districts. The State Education Department was consulted and a plan of centralization was evolved. Copies of the plan were distributed to all the inhabitants in the proposed district, and meetings were held with various civic and social organizations throughout the area. There was much door-to-door canvassing by members of the PTA, the Union Free School Board of Education, and the school staff. Ultimately, the centralization was adopted in June, 1949, and became effective on July 1, 1949. A seven-member board of education was elected and immediately began a study of the educational problems underlying the planning of a building. The architects were chosen on the basis of an established reputation in the field of school construction. They went to work immediately, making preliminary plans on the basis of data which had been collected and published prior to centralization.

At the same time, the board of education began the process of selecting a site. The opinions of the architects, the State Education Department, and the State Department of Health were sought. Because of the advantageous road network and the fact that 95 per cent of the pupils of the school would have to be transported by bus, the building was planned to be near the geographical and population center of the community. Sites lying within two miles of this point were investigated. Because of lack of municipal water supplies and sewage disposal, the site had to have potentialities for these services as well as a sufficient acreage to accommodate a modern school plant. The site finally selected came close to fulfilling the many requirements.

The Parent-Teacher Association remained active during this period, publishing the financial facts in reference to the proposed building. Meetings were again held on various problems connected with the curriculum, the choice of site, changes in the tax rates, and

The stage of the auditorium-gymnasium is on a level with the school proper, while the floor has been graded to a sloping site.

transportation. In the spring of 1950, the bond issue, for which a prospectus had been issued to the people, was put to vote and carried. Immediately, the board of education authorized the preparation of final plans.

The plans were completed and approved by the board of education and the State Education Department, and issued for bid on February 14, 1951. Needless to say, the Korean war, which had broken out shortly after the bond issue was voted, had ruined all price estimates, with the results that the voters were asked for an additional appropriation of $100,000. The facts were again thoroughly presented and passage was secured. Construction of the building was begun on April 15, 1951. The building was sufficiently completed to permit its occupancy in September, 1952. The process of providing this modern school plant was marked by close co-operation between the board of education and the Parent-Teacher Association, the principal, the district superintendent, the teachers, and the parents — all by full discussion of all facts pertaining to the project, and open publicity of all matters pertaining to the building.

The building itself is a modern one-story plan, with architectural steel windows, and a roof sloping to the center. The design which is strictly functional has been developed in brick, with a minimum of Bedford stone trim. Some of the construction features are as follows:

1. The long driveway leads directly into the bus-loading platform where it is possible for students to leave or board the buses without exposure to the weather.

2. The building levels are adjusted to the site, the gymnasium floor being built to grade to eliminate the necessity of fill on a sloping site. The stage of the combination

Floor Plan, Galway Central School, Galway, N. Y. — Ryder & Link, Architects, Schnectady, N. Y.

The Galway Board of Education participated in the educational and architectural planning of the new building.

Seated, left to right: **Walter Armer, president; James Arnold; Margaret Hall; Ann Speanburg, clerk; and Dr. E. A. Suss.** ***Standing, left to right:*** **Stanley Bylebyl; James R. Donnan; and Michael T. Griffin, principal. Mrs. Helen Smith, board member, was absent when the picture was taken.**

gymnasium-auditorium is on a level with the rest of the building. The cafeteria opens directly off the stage, with two pass doors. This means that the cafeteria may be used as a waiting room for students who are going on stage for programs and will permit the use of the stage as an annex to the cafeteria in the event of increased enrollment.

3. Fluorescent lighting is provided throughout the building, except in the auditorium-gymnasium. The high initial cost will be repaid in the low operating cost.

4. Classroom and corridor walls are cinder block, painted. Various attempts were made during the course of construction to dress up the texture of the block, but it was discovered that the best finish results from painting the raw block. One end wall of each classroom is paneled pine which provides unlimited tackboard. The teachers were somewhat hesitant about its use at first for fear the surface would be marked. It was explained, however, that when tack marks begin to show, they can be hidden with a paste filler.

5. Another design feature was the placement of lockers on opposite sides of the exit door which leads from the gymnasium to the playing field. This precludes the necessity of boys with soccer or baseball shoes walking through the rest of the building.

The sloping of the roof to the center eliminates the danger of ice on the eaves of the building. It also cuts down the enclosed space in the building and thus reduces the space to be heated and, therefore also, the initial as well as operating cost. The roof is framed with structural steel with gypsum roof deck. The construction is fire resistant.

7. Ceilings are of a blown-on glass fiber, with excellent acoustical and insulating properties. However, the ceiling in the corridors which is 8 ft. 6 in. high, represents a distinct temptation to students trying to satisfy their curiosity as to the nature of the ceiling. The problem has been solved locally, but visiting students are also curious.

The purchases of all equipment were made on specifications drawn up by the supervising principal, and submitted to suppliers for bids.

Certain economies in construction were achieved. The board of education eliminated the clerk of the works and instead entered into a contract with the architects over and above the standard architect's agreement, to perform the immediate superintendence of the work on the job on a part-time basis. The architects were asked to do this by the board of education because of a shortage of funds. Although the plan worked well in this case, it would not be recommended except where there is complete understanding between the architect and the owner. Certain unanticipated saving was made on temporary heat because of the timing of the job. The board of education and the architect co-operated in controlling extras, with the result that only those extras were approved that were absolutely essential to the building, and amounted to less than 1 per cent of contract price.

An economy in the building mentioned above was the minimum of waste space, all square footage being usable, and the overhead cubic footage being cut to a minimum. This results in a cubic foot cost which might not be as low as might be expected from the type of construction, but which results in a low cost per square foot.

Careful provisions were made for economy in maintenance. The heating system was designed to use No. 6 oil, which runs about three cents a gallon cheaper than other heating fuels. The oil has to be heated to be used, but the electricity used for heating represents low-cost kilowatt hours.

The principal method of "dressing up" the building was in the careful selecting of harmoniously colored paints and floor tile. This was done by a committee composed of the two women members of the board of education, the architect, a color expert of the paint supplier, and the supervising principal. About six different paint patterns were used throughout the building, no two rooms being exactly the same. The paint used was a rubberized paint. The result is quite a variety of interesting and cheerful colors. The lobby, for example, is done in a rather startling red.

The four principal contracts amounted to $491,006. The building has a pupil capacity of 396 giving a cost per pupil of $1,260. The building cost $15.12 per square foot and 96.3 cents per cubic foot. Architects' fees, grading equipment, site, and legal fees brought the total cost to $589,795.35.

One wall of each classroom has been paneled with pine to provide ample tackboard space.

Color for the School Plant Interior

Gerald Firth

I

There is an adage to the effect that everybody talks about the weather but nobody ever does anything about it.

Color resembles the weather in many respects. Both continually surround us all our lives regardless of our location or activity. Like the weather conditions, color exerts a constant influence upon us; the various hues affect us in different ways. In fact, since changes in the weather produce color changes, the two may be considered relatives. The chief distinction is that, except for minor, localized, and brief alterations, the weather remains beyond the control of man.[1] Its conditions, be they compatible or hostile, must be accepted as they exist. Color maintains the opposite position. There is no need in the twentieth century to tolerate a color which is detrimental to the people concerned.

Great strides in the use of color have been made recently — by industry, stores, hospitals, and schools. During World War II, a considerable body of knowledge regarding color was accumulated. Technicians in the field of vision and illumination continued clinical studies to cope with morale problems, eyestrain, and fatigue. The principles thus developed can be well capitalized upon by schools in this country. However, this reservoir of information has not been tapped sufficiently. Many students who learn scientific facts about color in class are surrounded by dull and colorless rooms. When the period ends, they emerge into equally drab corridors. White plaster walls and concrete floors often provide a general effect as cheerless as that of a tomb. In brief, students, teachers, parents, school board members, and architects realize the importance of color in everyday living; but not always is anything done about it. The force of the trend is evident. The practical problem is to spur its progress so that the time lag will be minimized and the students of every community will be able to enjoy the benefits as soon as possible.

II

The testimony in the case for color may be divided arbitrarily into four categories. The significance of the items will depend upon the individual. Still each is basic to promoting the introduction or improvement of the interior decoration in a particular school plant whether it is being discussed by members of the faculty, the board of education, a citizen's committee, a group of parents, or even a student council.

Physics Research. Through the study of light, physicists have given us a better understanding of color. They have substantiated the fact that color is part of the lighting system, that sunlight and various types of artificial illumination affect colors in different ways. Unfortunately, the action of pigments which we use is not wholly in agreement with the physics of color. For the most part, this discrepancy is attributed to impurities in the pigments.

Psychological Implications. Color has a marked effect on our mental attitudes. We usually enjoy a bright sunny day in preference to a dreary, rainy one. Businessmen have discovered that the morale and efficiency of workers can be improved by proper color conditioning. Special attention to color by hospitals has been found beneficial to patients, especially those afflicted with nervous and mental disorders. Similarly, emotional relaxation of both students and teacher may be improved if color is wisely utilized in the school.

Color schemes are of two general types, color contrast and color harmony. While excellent results can be produced with deftly executed color contrasts, it is believed that color harmonies can create the best psychological situation. Invoking the latter reduces the likelihood of distraction from the ultimate purpose of color in the school — the production of the best environment to facilitate learning.

Some colors, notably derivations of red, stimulate a feeling of warmth. Fire is red and hot while we commonly associate tan with warm tropical sand.

Derivatives of blue and green usually produce a cool sensation, probably because shadows are blue and gray, trees and grass are green. The former are considered slightly cooler than green; a very light green tends to approach yellow, which is warm.

The emotional consequence is that the warm tones excite whereas the cooler hues seem more restful.

Also, the warm colors are referred to as "advancing colors," the cooler ones having become known as "receding colors." This concept may have evolved from relations with small, warm-colored interiors and vast, cool-colored exteriors. The intervening atmosphere grays or softens all colors seen at a distance. Greens, blues, and grays are associated with the outdoors and great expanses.

In general, then, cool colors — greens, blues, and neutrals (gray, white, and silver) — are recommended for secondary schools. Large quantities of reds, oranges, tans, browns, yellows, and creams are less acceptable for working environments in classrooms where overstimulation is to be avoided, and may be more appropriate in the lower elementary grades. Monotony should be avoided. Small amounts of complementary colors are therefore desirable.

The interior of many schools is painted a single color. The necessity of a single cream, buff, or tan because of high light reflectivity will be subsequently disproved during the discussion of lighting. Here it is objected to because of the psychological and emotional obstacle such practice creates.

Cost. The financial issue — rightly or wrongly — is a prime hurdle. Therefore, it qualifies for early examination. A leading argument against more than one standard color for schools continues to be increased cost. Prof. Henry Linn of Teachers College, Columbia University, acknowledges a slight additional cost for color combinations but declares it probably will not be more than 5 per cent above that of a standardized painting program. His opinion that the advantages of color override economy concurs with those of many other educators. Superintendent E. L. Steinke of Selah, Wash., is quoted as saying in reference to a new elementary school: "We found it cost just about the same to vary the color applications on walls and ceilings as it would to apply a single pattern."[2] Whatever the price range in a specific community, the evidence seems to indicate clearly the minor difference in cost makes the question of finance comparatively unimportant.

Proved Success. The most conclusive endorsements of multi-colored school interiors arise from their established successes. Parents, students, teachers, and principals have acclaimed the color program in the New York City schools.

At Selah, Wash., the teachers are positive that the varied colors have improved the deportment and general attitude of the more than three hundred children who attend kindergarten, first, second, and third grade in the new building.

There was enthusiastic praise for redecoration of old school plants in Wilmette, Ill., which included the use of wallpaper. An evaluation after six years of use revealed the following:

1. Noticeable changes in children's attitude toward school property, great pride, and interest in helping maintain the schools.
2. Children now bring their parents and friends to show off where they "live" at school.
3. Teachers find relaxation and a lift in living with children in a more homelike atmosphere.
4. Custodians, who accepted the new color order with resentment, are wholeheartedly in favor of the change. A higher standard of housekeeping is maintained.
5. The cost of maintenance is a fraction higher than formerly, depending upon the cost of the wallpaper used. However, we have found our decorative scheme to be practical over a period of years, even with the type of housekeeping these rooms demand to keep them to our very high standard.[3]

(To be concluded in February)

[1] Dry ice seeding of clouds to cause rain and the atmospheric reactions to atomic detonations are weather changes achieved by man.

[2] Herbert Jonas, "John Campbell School Employs Pastel Colors to Brighten Classroom," AMERICAN SCHOOL BOARD JOURNAL, Apr., 1949, p. 47.

[3] Lester F. Ball, "Providing A Homelike Atmosphere," *Nations Schools*, Sept., 1948, p. 58.

The American
School Board Journal
William C. Bruce, *Editor*

1954 SCHOOL CONSTRUCTION

IN SPITE of the enormous construction activity of 1953, the opening weeks of 1954 find the United States confronted with a school building shortage estimated by the U. S. Office of Education as exceeding 325,000 classrooms.

The causes of this situation, which must be found mostly in the increased birth rate since 1945 and shifts in population, has also been brought on by the obsolescence of old schools, the rising cost of construction, and the higher requirements of the educational program.

The year 1953 has seen an increase in the cost of borrowed money. Rising from an average interest rate of 1.90 to 2.00 per cent in January, 1953, the monetary policy of the new national administration caused interest rates to rise in June and July to 2.90 per cent and in many less fortunate school districts to as high as 3.25 and even 3.75 per cent. The vast amounts of school bonds which reached the market in May and June were made conspicuous by the huge state school issues of Georgia, California, and Florida, but were only secondarily responsible for the rise in interest rates. Since August, school bond prices have again risen so that the average interest cost in the last quarter has dropped to about 2.80 per cent and has been as low as 2.40 per cent in school districts with the highest rating. It is more than likely that school bond prices will be steady during the first half of 1954, unless international conditions deteriorate or domestic business suffers a sharp recession.

The financial difficulties of boards of education are making more clear from year to year the need of statewide support of school plant projects and ultimately of federal aid. The constitutional limitations on local bonding capacity cannot be disturbed without danger, and while the organization of private school-building corporations and of state schoolhousing authorities afford excellent relief, they are of questionable value for the long term. The issuance of state bonds and grants offers a better solution of the problems of the poor districts. Ultimately legislation, like that in Florida, should develop a permanent annual income earmarked for building construction so that even the poorest districts will be able to catch up and maintain adequate school plants.

The year 1953 saw a rise in the index of construction costs from 560 in October, 1952, to 587 in October, 1953. It is not likely that construction costs will see any significant increase in 1954. A considerable reduction in new home and industrial construction is predicted, as a result of which producers of building materials and contractors will be willing to accept reduced profits on public construction. A contract for a school building in a New York state community estimated at $300,000 was let in October, 1953, for $250,000, and while such sharp drops in contract prices are improbable, there are widespread indications that the only rises in prospect are those due to uncertain wage demands.

Whatever the changes in cost in 1954, school boards must plan for the immediate solution of their housing problems so that the children, who cannot wait, may have adequate classroom space for the best quality of educational program. It has been observed frequently that education, including the school plant, cannot await the solution of world problems or even the stabilization of economic conditions.

As applied to schools, the discussion of architectural design has moved away from even the so-called contemporary style. Functionalism has so taken over that, except for multi-story buildings in the North, the school building represents no more style or design in the older meaning of these terms, than glass screens, a flat parapetless or overhanging roof, and an occasional necessary blank wall. What architectural dignity and beauty are achieved result entirely from the use of intrinsically good materials; an accidental happy relation of dimensions, color, and total mass; and the unconscious feeling of maximum adaptation of the glass enclosed space to the educational use by children. In fact, in the South and Southwest, the forms of the open-planned buildings are so varied that harmony with site and landscape and unity of structure are difficult to discover.

Except in urban situations where the cost of land makes the two-story school economically inevitable, we shall be committed for some years to come to the one-story schoolhouse. Class sizes and instructional methods have made necessary the nearly-square classroom of 900 to 1000 square feet of floor space. While old building codes still hamper designers, the whole effort in construction is toward simplicity and economy in materials and labor. Fire safety, higher quantity of light, control of sound, and flexibility are points of control. There is a tendency to lower ceilings to nine or ten feet and to depend on clerestory windows for cross light. Research is badly needed in relation to ceiling arrangements and other aspects of classroom design so that more economy may be achieved.

A new school building reflects more significantly than is usually appreciated the quality of education in a community. The Strayer report of the State of Washington School Building Survey says: "An alert, informed observer with a pass key, walking around through empty school buildings on a Saturday morning, can get a more complete and reliable picture of the educational philosophy of the professional staff, the board of education, and the community in a few hours than he could by days of searching through records, reports, bulletins, and publications."

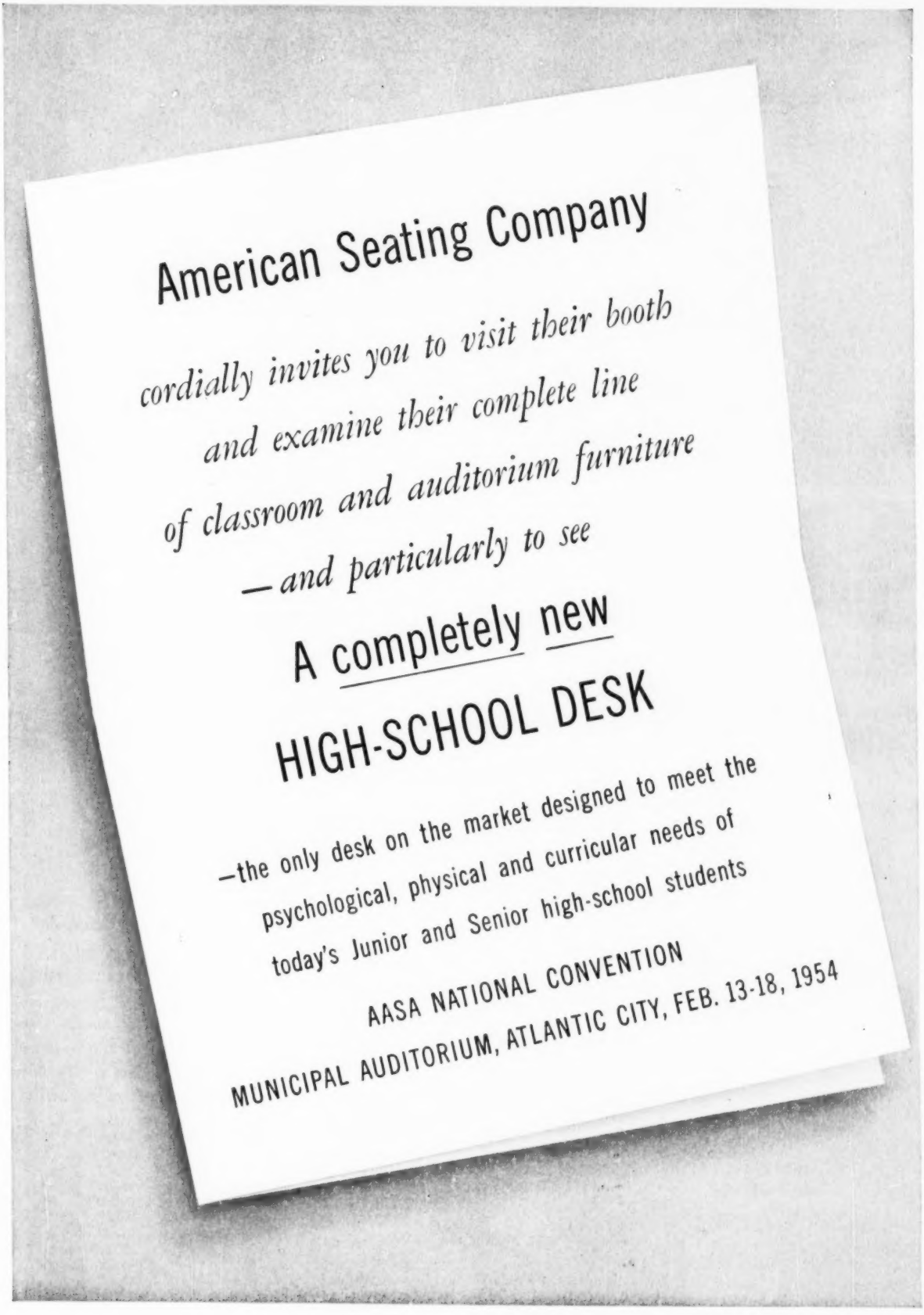
School boards must continue to attack their school building shortage problems with energy and intelligence. The needs and opportunities for service to the children of America are challenging.

EDUCATIONAL TV

UNDER whose sponsorship should local educational TV be offered? Should the board of education take over and make it entirely a project of the school district? Should some university — perhaps the state university — handle the program as one of its extension activities? Or should various regional educational and cultural institutions join in providing funds, planning programs, and supplying speakers?

If the school district has control, there will be emphasis on the work of the elementary and secondary schools, and considerable attention to the more formal aspects of adult education. If the university lends its professors, the program of offerings will be broadened and emphasis laid on cultural subjects. The viewpoint is certain to be didactic and scholarly rather than widely popular. If a group of cultural and educational institutions of differing character and purpose join in program making, the variety of the offerings, the levels of interest, and the immediate purposes of the telecasts will be richer and more significant for the community's total cultural life.

There is need for consideration of the total effect of educational television before the local situations are fixed in pattern and sponsorship. Some of the financial difficulties which now exclude other aspects of the future of television will be readily solved when all possibilities are explored.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MUNICIPAL AUDITORIUM, ATLANTIC CITY, FEB. 13-18, 1954

The Indianapolis Board of School Commissioners
Left to right: Raymond F. Brandes, Grier M. Shotwell, Mrs. Dale R. DaVee, and Paul E. Jones.

Indianapolis Board Builds

Poring over a stack of school building plans, members of the Board of School Commissioners of the City of Indianapolis contemplate future decisions they will have to make to provide adequate educational facilities for the city's rapidly increasing school population.

Shown left to right are Raymond F. Brandes, chairman of the board's committee on substandard building conditions; Grier M. Shotwell, board president; Mrs. Dale R. DaVee, vice-president; and Paul E. Jones, chairman of the board's finance committee. A fifth commissioner, Joseph Guidone, buildings and grounds committee chairman, could not be present for the meeting shown here.

The commissioners are elected at municipal elections for four-year terms. Mr. Brandes and Mr. Jones will end their terms on the board on December 31, 1953.

In recent meetings, the Indianapolis board has authorized construction of six elementary school additions totaling 36 rooms, two new elementary schools, additions to two high schools, and has awarded contracts for remodeling an old high school and converting it to a new type of junior high and trade and vocational school. This construction program has been estimated at just under $4,000,000.

The board now has under construction eight other projects that will provide a total of 92 classrooms at a cost of about $3,300,000. In the current year, it has accepted from contractors still other jobs which totaled about $6,100,000 and provided 121 new classrooms and other facilities.

Indianapolis public school enrollment now is about 66,000. By next fall, it is expected to be about 70,000 and by 1956, it is expected to be over 75,000.

At the same time it has been so concerned with its program of providing new facilities, the Indianapolis board also has been able to initiate a modernization and rehabilitation program in its older school buildings.

Figures compiled by Mr. Brandes' substandard conditions committee indicate that a total of some $2,000,000 is needed by the Indianapolis system to provide modern lighting, heating, ventilating, and plumbing facilities in all buildings. Some 70 per cent of all buildings were found to need some modernization of these facilities.

The board has outlined a four-year program of correcting these conditions and has earmarked $500,000 each year from its cumulative building fund for this work. Its buildings and grounds department has worked out a schedule for this modernization that will allow contractors to bid on a group of schools that need the same type of work.

The Indianapolis building program is being financed by a cumulative building fund, raised by a tax levy that is separate from the board's operating tax levy, and by sale of bonds. The levy, increased from 20 to 30 cents on each $100 of assessed property valuation in 1953, will raise about $2,100,000 a year on the basis of the present valuation.

MASSACHUSETTS BUILDING COSTS

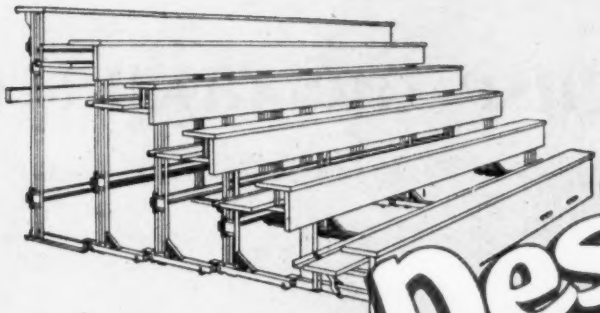
Dr. John E. Marshall, administrator of the School Building Assistance Commission of Massachusetts has compiled a tabulation showing the high school building costs in the state for new school buildings erected in 1953:

Junior High Schools

City	*Total Cost*	*Cost Per Pupil*
Wellesley	$1,700,000	$1,836
Abington	961,499	1,838
Holyoke	1,452,307	2,964
Attleboro	825,999	2,140
Weymouth	1,365,694	2,165
Brockton	1,741,500	1,986
Worcester	1,843,511	1,920
Pittsfield	2,092,000	2,372
Pittsfield	2,168,000	2,349
Lynnfield	1,145,000	2,718
Beverly	2,106,011	2,208
Worcester	2,011,000	2,019

Senior High Schools

City	*Total Cost*	*Cost Per Pupil*
Sutton	$ 466,789	$1,128
Canton	631,539	2,057
Cohasset	886,783	2,101
Bridgewater	1,050,931	1,710
Westport	800,000	1,798
Wilmington	453,000	1,425
Grafton	723,230	1,280
Falmouth	1,580,000	1,911
W. Bridgewater	1,307,000	1,977
Randolph	1,272,499	1,259
Adams	1,334,400	2,239
Lexington	1,770,000	2,090
Millbury	931,693	1,758
Wareham	974,999	1,950
Methuen	1,795,000	1,802
Mansfield	1,604,125	2,065
Reading	2,540,000	2,313
N. Andover	1,507,825	2,650
Natick	3,500,000	2,437
Hingham	1,915,000	2,302
Wakefield	2,065,621	2,255
Westford	870,000	1,747



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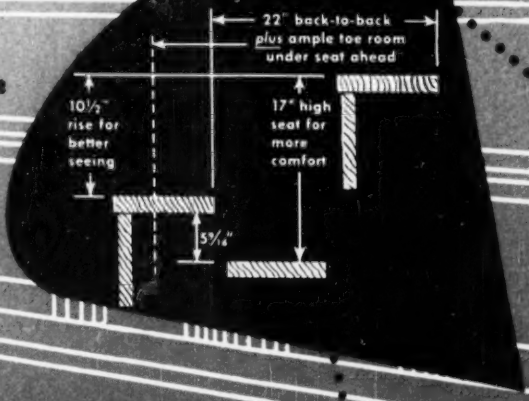

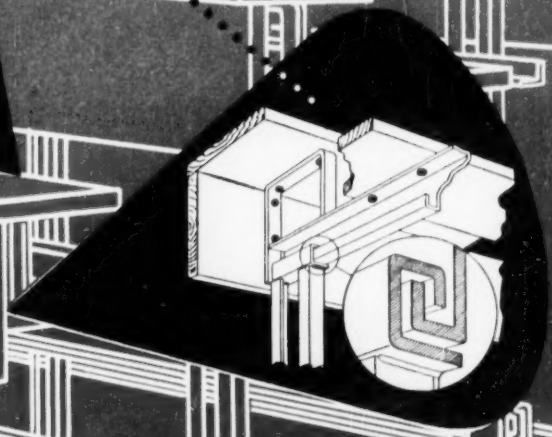

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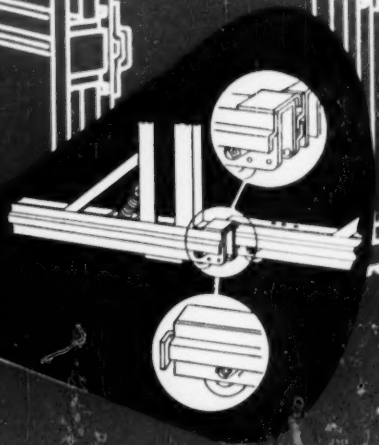
Interlocking members and multiple supports make opening and closing easier —assure true alignment and prevent binding



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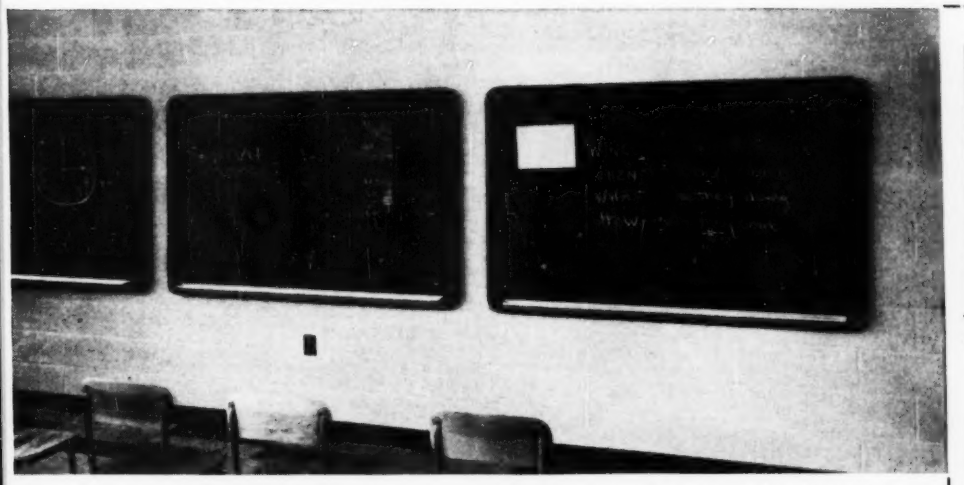
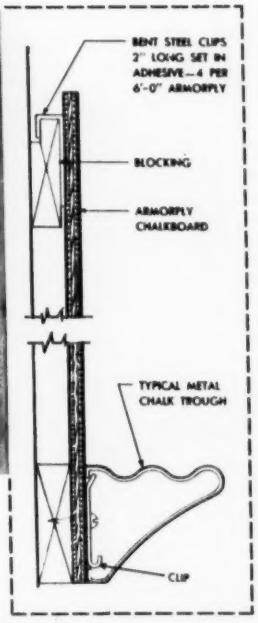
That is why more and more school building authorities are including low cost Weldwood products in their plans. Schools especially noted for their beauty and functional design have long since proved the immediate and long range economies possible through the use of Weldwood products.

For further information see your local lumber dealer or write to any of the 60 United States Plywood or U. S.-Mengel distributing units located in principal cities, or mail coupon.

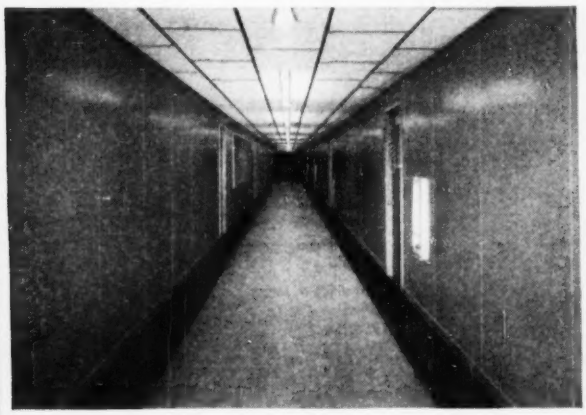
WELDWOOD STAY-STRATE® DOORS AND FIRE DOORS (Pat. No. 2,593,050) have a special mineral core which prevents warping, shrinking or swelling. They are *unconditionally guaranteed* for the life of the installation. The Weldwood Fire Door carries the U.L. Label for class B and C openings. Both types are available in a variety of beautiful woods. The light cutouts will not weaken the rigidity of the birch Weldwood Stay-Strate Doors shown at the Lake Hiawatha School, Troy Hills, N. J.

as well as the pupil





ARMORPLY* CHALKBOARD SAVES 30% on installation costs. No frame is needed. Cool green surface is easier on young eyes. Takes chalk beautifully. Porcelain-surfaced steel† face attracts small magnets, makes visual aids and physical demonstrations possible. Won't scratch, chip or crack. Armorply Chalkboard is guaranteed for the life of the building. It will never need to be replaced and requires no maintenance beyond normal cleaning. Sketch shows how easily it attaches to wall. Above is typical Armorply Chalkboard installation at Fairlawn Junior High School, Fairlawn, N. J.



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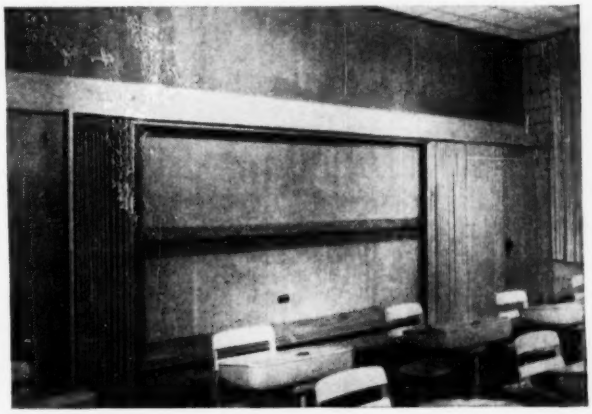

WELDWOOD HARDWOOD PANELING has a permanent beauty unmatched by any other type of wall covering. Its first cost is its last because it is guaranteed for the life of the building. Available in almost any wood face desired—in a wide range of sizes. New prefinished panels eliminate costly on-the-job finishing. Illustration shows Weldwood oak paneling in Transfiguration School, Tarrytown, N. Y.

*Trademark

†Porcelain enamel surface by the Bettinger Corporation

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NEW PUBLICATIONS for School-Business EXECUTIVES

Compendium of City Government Finances in 1952

Compiled by the U. S. Department of Commerce and the Bureau of the Census. Paper, 157 pp., 65 cents. Published by the U. S. Government Printing Office, Washington 25, D. C.

A study of the finances of 481 cities having more than 25,000 inhabitants. The total revenue for the 481 cities during the year ending in 1952, amounted to 6,583 million dollars, or 8.8 per cent more than in 1951. The total expenditure was 6,721 million dollars in 1952, as against 6,227 million dollars in 1951.

School District Liability

Paper, 23 pp., 50 cents. American Association of School Administrators, 1201 Sixteenth St., N.W., Washington 6, D. C.

Safeguarding from personal harm or injury the pupils enrolled in the schools, the personnel employed by the school district, and other persons is a moral as well as a legal obligation of the school district. This pamphlet, based on a manuscript prepared by Lee O. Garber and E. C. Bolmeier, deals with one aspect of school board liability — tort liability or liabilities for injuries to persons and property. It discusses liability for damages caused by negligence, liability for trespass or nuisance, personal liability of school officers, liability in pupil transportation, and liability insurance.

Doorway to Better Schools

Paper, 44 pp. State of New York Commission on School Buildings, Albany, N. Y.

This fourth report of the temporary State Commission on School Buildings of New York State presents a fine report of help given to local communities. New York State is at present in need of a large addition to the school plant in practically every area; it is in need of higher educational space standards, of more funds for school buildings, of better planning and construction for new educational methods. It is also in need of greater economy in architectural services, site selection, planning and construction, and methods of financing. The present report in spite of the statements of intense needs in the near future is a record of splendid achievement.

Building Planning Conference

The bulletin of the School of Education, Indiana University. Paper, 104 pp., $1. Published by Division of Research and Field Services, Indiana University, Bloomington.

This report of the 1953 Indiana and Midwest school building planning conference contains papers on progress in the state of Indiana in the planning of school sites; the development of educational specifications; the necessity of research in school planning, heating, ventilation; changes in school building forms. There is a presentation of the newest ideas on "Form In Educational Architecture," by W. W. Caudill.

Montana School Bus Driver Manual

Compiled by K. W. Bergan, supervisor of transportation. Paper, 90 pp. Published by the State Department of Public Instruction, Helena, Mont.

This third revised edition of the *School Bus Driver Manual* points out how the school bus driver can fit his activities into the total school picture with maximum results and a minimum of effort.

Tales of Seven Cities

Paper, 36 pp. National Citizens Committee for Educational Television, Washington 6, D. C.

A series of narratives describing the variety and similarity of problems in organizing civic and citizen support to build educational television stations. In 1953 two educational stations were on the air daily; it is expected that 27 will be telecasting by 1954; 86 other communities have plans in preliminary stages.

Handbook of Duties and Responsibilities of Personnel

Paper, 32 pp. Published by the board of education of Fayetteville, N. Y.

A complete guide to the duties and responsibilities of the school personnel, including clerical and administrative employees, cafeteria workers, special school directors, school officers, teaching personnel, maintenance and custodial employees, and transportation employees.

Office Employees Guide

Compiled by Paul A. Miller. Paper, 16 pp. Published by the Warren City Schools, Warren, Ohio.

This guide points out the importance of the job and outlines principles of operation to help each person understand the school system. It takes up the central library, the channeling of information, and the duties of various school employees.

Education and Fifty Years of Flight

Paper, 16 pp. National Aviation Education Council, 1115 Seventeenth St., N.W., Washington 6. D. C.

This discussion of the progress of aviation in the past 50 years, suggests to administrators and teachers ways in which the fiftieth anniversary of aviation may be observed in schools.

Code of Ethics for Placement Officers

Compiled by the Placement Bureau of the Northern Illinois State Teachers College, DeKalb, Ill.

This code clarifies the role of the various individuals contributing to the making of a teaching contract.

School Building Costs

Compiled by the Building Research Advisory Board. Paper, 83 pp., 50 cents. Published at the National Academy of Sciences, 2101 Constitution Ave., N.W., Washington 25, D. C.

This is a report of a conference held in February, 1953, at the office of the Building Research Advisory Board. It discusses the present-day problems of school building costs and recommends methods for more economy in the use of materials, etc.

A Brief History of T.A.S.A.

By N. S. Holland. Paper, 191 pp., $3. Distributed by Frank Richardson, Secretary-Treasurer of T.A.S.A., Henrietta, Tex.

The superintendents of Texas city and county school systems have played a significant role in the growth of education in the Lone Star State and in their own professional development. This is the very human account of the first quarter century of the Texas Association of School Administrators.

A Handbook for Administration

Paper, 54 pp. Issued by the Board of School Trustees, Columbia City, Ind.

This well-balanced handbook issued by the board of school trustees gives the teaching staff and the non-teaching employees a ready reference to rules, regulations, and policies governing the administration of the schools. The regulations relate to the organization of the school board, the duties of the superintendent, of the principals and teachers, absence and tardiness of pupils, duties of the school custodians, pupil discipline, and rental of school premises, and numerous minor policies.

Current Expenditures Per Pupil in City School Systems, 1951–52

Compiled by Lester B. Herlihy. Paper, 38 pp., 25 cents. Circular No. 371, July, 1953. Published by the U. S. Office of Education, Washington 25, D. C.

A report of a study of 299 cities maintaining independent school systems, showing current expenditures for all-day operating expenses, such as salaries and pensions, instructional materials, administrative costs, fuel, repairs and replacements, and pupil transportation.

The report indicates that in cities over 100,000 population, the median cost per pupil was $264, an increase of 6 per cent over the previous year. In 61 moderately large cities, population 30,000 to 100,000, the median cost was $251, an increase of 4.1 per cent. In 71 medium-size cities, population 10,000 to 30,000, the median cost was $236, an increase of 6.3 per cent. In 66 small cities, population 2500 to 10,000, the median was $222, an increase of 6.7 per cent.

What is the Advisory Committee?

Paper, 7 pp. Compiled, printed, and distributed by the Advisory Committee of the Madison Elementary School Dist. No. 38, Phoenix, Ariz.

This is a report of a citizens' committee covering a study of some of the problems facing the Madison School District. It describes the work of the committee and offers a summary of the six major projects undertaken by the committee, including a study of the school enrollment, schoolroom capacities, and a proposed school building program as a solution to the housing problem.

Our Public Schools: The School Lunch Program

Compiled by Harvey K. Allen. Paper, 30 pp. Published by the New York City Board of Education, 110 Livingston St., Brooklyn 2, N. Y.

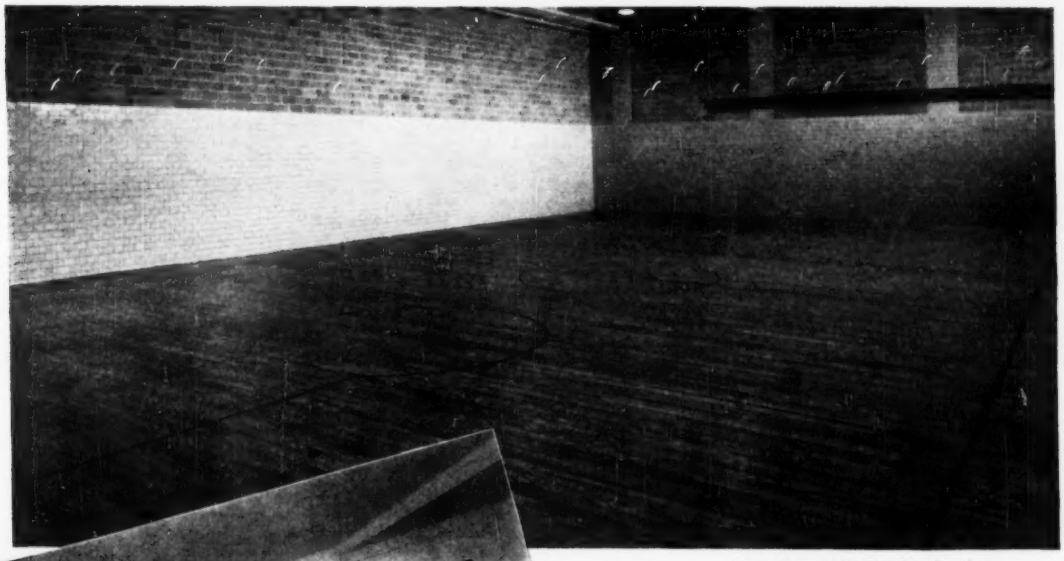
This annual report discusses the administration of the program in 1951–52, school lunch preparation, lunchroom facilities, and special service for handicapped children.

MINIMUM AND MAXIMUM SALARIES OF REGULAR TEACHERS, 1953–54

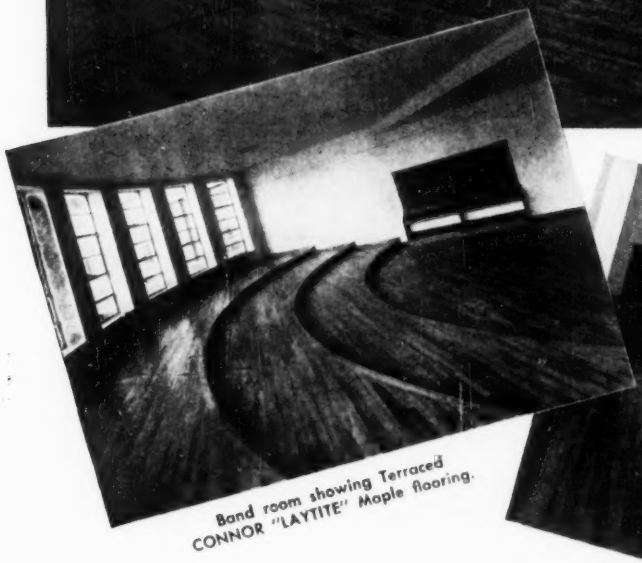
(Concluded from December)

CITY	POP.	MIN.	MAX.
Chicago, Ill.	3,620,962	$3,000	$5,890
Boston, Mass.	801,444	3,312	5,496
Atlanta, Ga.	331,314	2,520	5,280
Providence, R. I.	248,674	2,775	5,175
Dayton, Ohio	243,872	2,800	5,400
Pasadena, Calif.	104,577	3,500	7,000
Dearborn, Mich.	94,994	3,400	6,000
Manchester, N. H.	82,732	2,750	4,210
Waterloo, Iowa	65,198	3,000	5,000
Ogden, Utah	57,112	2,845	4,450
Anderson, Ind.	46,820	3,300	5,450
Inglewood, Calif.	46,185	3,750	6,310
Council Bluffs, Iowa	45,429	2,850	4,450
White Plains, N. Y.	43,466	3,300	6,400
Newport News, Va.	42,358	2,500	4,250
Rome, N. Y.	41,682	2,800	5,000
Chelsea, Mass.	38,912	2,700	3,900
Orange, N. J.	38,037	2,800	5,800
Cumberland, Md.	37,679	2,700	4,500
Newport, R. I.	37,564	2,400	4,400
Biloxi, Miss.	37,425	2,250	3,000
Moline, Ill.	37,397	2,800	4,650
Muskogee, Okla.	37,289	2,550	3,650
Independence, Mo.	36,963	2,700	4,400
Wyandotte, Mich.	36,846	3,600	5,950
Portsmouth, Ohio	36,798	3,000	4,640
Spartanburg, S. C.	36,795	2,500	3,700
Revere, Mass.	36,763	2,950	3,850
Auburn, N. Y.	36,722	2,950	5,000
Fort Lauderdale, Fla.	36,328	3,000	4,500
Hagerstown, Md.	36,260	2,600	4,700
Brownsville, Tex.	36,066	2,403	3,276
Eau Claire, Wis.	36,058	2,900	4,900
Enid, Okla.	36,017	2,400	3,400
Eugene, Ore.	35,879	3,360	5,148
Steubenville, Ohio	35,872	3,000	same
Woodbridge, N. J.	35,758	2,800	5,500
Port Huron, Mich.	35,725	3,050	4,650
Elkhart, Ind.	35,646	3,350	5,500
Easton, Pa.	35,632	2,600	5,100
Lafayette, Ind.	35,568	3,400	5,350
Hazelton, Pa.	35,491	2,400	5,400
Pomona, Calif.	35,405	3,750	6,100
Superior, Wis.	35,325	3,000	4,800
Danville, Va.	35,066	2,400	3,600
Petersburg, Va.	35,054	2,150	3,350
Bakersfield, Calif.	34,784	3,804	5,928
Lawton, Okla.	34,757	2,600	3,600
Nashua, N. H.	34,669	2,892	4,392
Boise, Idaho	34,393	3,120	4,440
Watertown, N. Y.	34,350	2,700	4,700
Newark, Ohio	34,275	2,600	4,620
Bloomington, Ill.	34,163	3,100	4,700
Bellingham, Wash.	34,112	3,344	4,724
Appleton, Wis.	34,010	3,000	5,350
Everett, Wash.	33,849	3,600	5,525
Marion, Ohio	33,817	2,600	4,326
Middletown, Ohio	33,695	2,600	4,500
Owensboro, Ky.	33,651	1,700	3,180
Ottumwa, Iowa	33,631	2,650	4,950
Hutchinson, Kans.	33,575	2,300	4,450
Lafayette, La.	33,541	2,640	3,960
Stratford, Conn.	33,428	2,800	4,800
Wauwatosa, Wis.	33,324	3,400	5,700
Butte, Mont.	33,251	2,936	4,536
Mishawaka, Ind.	32,913	3,300	5,400
Paducah, Ky.	32,828	2,525	3,350
Reno, Nev.	32,497	3,320	4,776
Amsterdam, N. Y.	32,240	2,700	4,950
Belleville, N. J.	32,019	2,800	6,000
Clarksburg, W. Va.	32,014	2,800	4,010
Columbia, Mo.	31,974	2,400	3,600
Newburgh, N. Y.	31,956	3,000	4,500
Cheyenne, Wyo.	31,935	2,850	4,950
Billings, Mont.	31,834	3,350	5,600
Bangor, Me.	31,558	2,700	3,900
Wilkinsburg, Pa.	31,418	2,700	5,000
Ashland, Ky.	31,131	2,400	3,250
Anniston, Ala.	31,066	2,250	3,000
Linden, N. J.	30,644	3,200	5,900
Burlington, Iowa	30,613	3,000	5,000
New London, Conn.	30,551	2,600	5,000
Wausau, Wis.	30,414	3,000	4,800
Clinton, Iowa	30,379	2,900	5,000
Elyria, Ohio	30,307	3,100	5,250
Marion, Ind.	30,081	3,200	5,000
Rochester, Minn.	29,885	3,600	5,640
Middletown, Conn.	29,711	2,800	5,200
Parkersburg, W. Va.	29,684	1,845	3,541
Ferndale, Mich.	29,675	3,464	5,621
Massillon, Ohio	29,594	2,873	4,989
Beloit, Wis.	29,590	3,200	5,600
Odessa, Tex.	29,495	3,400	5,150
Hattiesburg, Miss.	29,474	2,220	2,850
New Albany, Ind.	29,346	3,250	5,000
Hot Springs, Ark.	29,307	2,250	3,050
Ithaca, N. Y.	29,257	2,500	5,400
Hackensack, N. J.	29,219	2,700	5,350
Cuyahoga Falls, Ohio	29,195	3,200	5,000
Hempstead, N. Y.	29,125	3,600	6,800
Beverly Hills, Calif.	29,032	3,870	7,240
Provo, Utah	28,937	2,875	4,550
Parma, Ohio	28,897	3,500	5,700
Beverly, Mass.	28,884	3,000	4,600
Kingston, N. Y.	28,817	2,800	5,100
West Orange, N. J.	28,605	3,000	5,500
Kannapolis, N. C.	28,448	2,700	3,830
St. Cloud, Minn.	28,410	3,000	4,850
Michigan City, Ind.	28,395	3,300	5,300
Shaker Hgts., Ohio	28,222	3,200	6,000
Athens, Ga.	28,180	2,450	3,550
Bloomington, Ind.	28,163	3,150	4,900
Lebanon, Pa.	28,156	2,600	4,900
Framingham, Mass.	28,086	2,800	4,800
Santa Fe, N. Mex.	27,998	3,200	4,760
Concord, N. H.	27,988	2,640	4,400
Mason City, Iowa	27,980	3,060	5,436
Torrington, Conn.	27,820	3,000	4,600
Rocky Mount, N. C.	27,697	2,592	4,049
Bremerton, Wash.	27,678	3,397	5,115
Lackawanna, N. Y.	27,658	2,500	4,800
Manitowoc, Wis.	27,598	3,100	5,505
Garfield, N. J.	27,550	2,600	4,800
San Leandro, Calif.	27,542	3,700	6,100
Maywood, Ill.	27,473	3,400	5,000
Belmont, Mass.	27,381	none established	4,600
Sandusky, Ohio	27,375	2,800	4,900
Tallahassee, Fla.	27,237	2,575	4,280
Iowa City, Iowa	27,212	2,650	5,150
Nutley, N. J.	26,992	2,700	5,400
Melrose, Mass.	26,988	2,700	4,200
Gainesville, Fla.	26,861	2,750	4,500
Valley Stream, N. Y.	26,854	3,245	6,270
Grand Forks, N. Dak.	26,836	2,750	4,650
Sharon, Pa.	26,454	2,800	4,800

CONNOR "*LAYTITE*" NORTHERN HARD MAPLE FLOORING



CONNOR "LAYTITE" Maple gives gym unsurpassed floor.



Band room showing Terraced CONNOR "LAYTITE" Maple flooring.

A typical classroom with CONNOR "LAYTITE" Maple flooring.

ONE SCHOOL USED **48,000** Ft. — Exclusively in Franklin High School at Des Moines, Iowa, per illustrations above. Architects readily recognized our high quality and the saving that could be had by specifying "gym" or second and better grades which you see in above school.

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2. Long strips in bundles

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HIGH CONSTRUCTION LEVEL, 1954

The U. S. Department of Commerce, Building Materials and Construction Division, and the Bureau of Labor Statistics of the U. S. Department of Labor have joined in a prediction of construction to be carried on in 1954. While the total cost of all construction is expected to decline two per cent to 34 billion dollars, the cost of construction of educational buildings is expected to increase during the coming year.

It is anticipated that the private construction of educational buildings will increase from 423 billion to 450 million dollars, or 6 per cent. The public construction of educational buildings will rise from 1,742 million to 1,925 million dollars, or 11 per cent.

It is expected that the 1954 slowdown in construction will be heaviest in industrial plants, hospitals, farm buildings, military facilities, etc. Private construction of residential buildings is expected to drop 4 per cent, and public construction of residential buildings is expected to decrease by 34 per cent.

SCHOOL BONDS

During the month of October, 1953, bonds for the erection of school buildings were sold, in the amount of $133,703,850. The largest sales were:

California, $11,151,000	New York, $12,020,100
Illinois, $14,306,000	Ohio, $3,268,000
Iowa, $3,240,000	Pennsylvania, $10,705,000
Kentucky, $4,000,000	South Carolina, $30,000,000
Massachusetts, $2,866,000	Texas, $15,450,000
New Jersey, $5,390,000	Virginia, $6,450,000

The average yield for 20 bonds, as of November 1, was 2.69 per cent.

NATIONAL STATISTICS OF IMPORTANCE TO SCHOOLS*

Item	*Date*	*Latest Figure*	*Previous Figure*
School Building Construction[1]	Oct., 1953	$ 152,889,000	$ 138,195,000[8]
School Building Construction[2]	Nov., 1953	$ 16,745,138	$ 17,628,393[8]
Total School Bond Sales[3]	Oct., 1953	$ 133,703,850	$ 67,498,900[8]
Average Interest, Selected Municipal Bonds[3]	Oct., 1953	2.69%	2.86%[8]
Construction Cost Index[4]	Nov., 1953	585	583[8]
Wholesale Price Index[5]	Nov. 17	109.8	110.0[8]
Total Population of the U. S.[6]	Oct. 1, 1953	160,485,000	156,493,000[9]
City Operated Schools Expenditure[6]	1952	$ 875,000,000	$ 777,000,000
Forecast of Expenditures for New Construction in U. S.[7]	Nov. 13, 1953	*(1954)*	*(1953)*
Private Educational Construction		$ 450,000,000	$ 423,000,000
Public Educational Construction		$1,925,000,000	$1,742,000,000

*Compiled December 4, 1953.
[1]Dodge figures for 37 states east of Rocky Mts.
[2]11 states west of Rocky Mts.
[3]Bond Buyer.
[4]American Appraisal Co., Milwaukee.
[5]U. S. Dept. of Labor.
[6]U. S. Dept. of Commerce.
[7]Joint estimates, Dept. of Labor & Dept. of Commerce
[8]Previous month, 1953.
[9]Same month, 1952.

SCHOOL BUILDING CONSTRUCTION

Dodge reports that in 37 states east of the Rocky Mountains contracts were let during the month of October, 1953, for the erection of 587 educational buildings. The total contract cost was fixed at $152,889,000 and the floor area at 11,195,000 sq. ft.

In 11 states west of the Rocky Mountains contracts were let during the month of November, 1953, for 73 school buildings at a contract cost of $16,745,138. Forty-six additional projects were reported in preliminary stages at an estimated cost of $32,231,095.

★ Commissioner Charles J. Bensley, chairman of the New York City board of education's committee on buildings, has recently urged escalator schools to offset the high cost of school building sites. He holds it may be necessary to build taller schools, with escalators, assigning older children to the top floors. He said while it is planned to build schools low, it cannot be done with site prices at present so high. School sites in Manhattan are costing as much as a million and a half dollars.

★ Orrville, Ohio. The board of education has placed in operation two new four-room additions to the Oak and Maple Schools. The new additions are of the one-story type and cost approximately $225,000. At the November election, the voters approved a bond issue of $725,000, which added to a building fund of $250,000, will be used to construct a high school building.

School Government

The South Carolina legislature may, in addition to a constitutional mandate that a public officer be a qualified elector, require other conditions for eligibility with respect to the office of school trustee, but in so doing, the legislature is bound by equal privileges and immunities clause of the constitution, and the qualifications fixed may not be arbitrary, but must be reasonable and based upon substantial grounds which are natural and inherent in the subject matter of legislation, and the rights shall belong equally to each member of the class created by such qualifications. S.C. constitution, art. 1, § 10; art. 2, § 2; art. 11, § 1-3, 6. — *Lee* v. *Clark*, 77 Southeastern reporter 2d 485, S.C.

A South Carolina statute providing for a board of nine trustees of a school district, not less than three of whom shall be women, to be erected by the qualified voters of the district, and providing that the three women candidates receiving the largest number of votes cast for women candidates shall be elected, and that the six other candidates receiving the highest number of votes cast, whether men or women, shall be elected, is unconstitutional as granting unreasonably, a preferential status to women in running for the office of school trustee. Act of March 22, 1952, 47 Stat. at large, p. 2111; S.C. const. art. 1, 10; art. 2, 2. — *Lee* v. *Clark*, 77 Southeastern reporter 2d 485, S.C.

Members of a board of education of a municipality are public officers holding positions of public trust, and stand in a fiduciary relationship to the people whom they have been elected or appointed to serve. R.S. 18:6-37, N.J.S.A. — *Cullum* v. *Board of Education of North Bergen Tp., Hudson County*, 99 Atlantic reporter 2d 323, 27 N.J.Super.

Decisions Concerning Teachers

No one has a natural or inherent right to teach in a public school and the legislature for reasons of public policy may make the right to teach in ar. particular school subject to a broad discretion in school authorities to dismiss for causes which come within very general designations. — Calif. Education Code, § 13521 *et seq.*, 13529. — *Board of Education of City of Los Angeles* v. *Swan*, 261 Pacific reporter 2d 261, Calif.

Willful refusal of a teacher to obey reasonable rules and regulations of the employing board of education constitutes insubordination as ground for dismissal. — Calif. Education Code, § 13521 *et seq.*, 13529. — *Board of Education of City of Los Angeles* v. *Swan*, 261 Pacific reporter 2d 261, Calif.

The Feinberg Law, providing that the New York City Board of Regents shall adopt and enforce rules and regulations for disqualification or removal of subversive persons from the public school system, did not preclude the school board from adopting a statement of policy prescribing the Communist Party as a subversive organization, and providing that teachers should answer inquiries as to past and present Communist Party affiliations or be subject to disciplinary action. N. Y. Education Law, § 3022. — *Adler* v. *Wilson*, 123 N.Y.S. 2d 806, 203 Misc. 456, affirmed 123 N.Y.S. 2d 655, 282 App. Div. 415, N.Y.Sup.

Schools and School Districts

The Commissioner of Education of New York State has the power in laying out central school districts to include all or part of an existing school district. — *Application of Board of Education of Union Free School Dist. No. 1 of Towns of Neversink and Fallsburgh, Sullivan County*, 123 N.Y.S. 2d 840, 203 Misc. 566, affirmed 122 N.Y.S. 2d 484, 282 App. Div. 821, appeal denied 124 N.Y.S. 2d 367, N.Y.Sup.

THE SEGREGATION CASE

After three days of dramatic argument, the U. S. Supreme Court on December 9, 1953, concluded hearings on the constitutionality of laws segregating Colored and other nonwhite children in public schools. It is expected that the Court will not make its decision until June next.

The problem brought before the Court a large number of state school authorities and welfare groups interested in social welfare and in the improvement of social conditions, especially of Negroes. The cases before the Court came from Virginia, South Carolina, Delaware, Kansas, and the District of Columbia, and were originally argued in December, 1952. The briefs presented to the Court discussed the philosophical as well as the legal aspects of the Fourteenth Amendment to the Constitution, and suggested means of integrating the Colored and the white schools.

From Georgia and Mississippi there were rumblings of discontent indicating that some of the extreme opponents of integration are ready to scrap the public schools and to establish in their places so-called private schools which would not be subject to the Constitution.

The integration of schools in certain areas will increase the cost of the schools, but it is believed that generally there will be a reduction in costs and a broadening of the offerings, particularly of the high schools.

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takes the guesswork out of page-end typing!

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SCHOOL BOARD NEWS

★ The Portland, Ore., board of education has been sued by W. C. Elkins, father of a deaf child, who needs instruction in lip reading. The girl is enrolled in a parochial school. The board has refused the service on the basis that the child is not a full-time pupil of a public school.

★ Los Angeles, Calif. The board of education will act as an investigating committee to question school employees suspected of Communistic leanings. Supt. Alexander J. Stoddard reported that the school system is harboring 171 persons of doubtful loyalty. Teachers and other employees will be asked the usual questions about Communist membership.

★ Los Angeles, Calif. The board of education has adopted a new policy that salary schedules for teachers and employees shall become effective July 1, instead of September 1 as formerly. This means that 85 per cent of the budget earmarked for salaries must be committed by the end of June of each year.

★ The board of education of Oklahoma City, Okla., has participated in a movement to eliminate sorority and fraternity social clubs from the junior and senior high schools. Following the passage of a bill by the state legislature, the board has discontinued social clubs in all grades, except the junior and senior classes and has prohibited pledging. After a two-year period, these clubs will disappear with the graduating students.

★ The board of education of Oklahoma City, Okla., has organized four citizens' committees. These committees will study school problems in (1) curriculum, (2) buildings, (3) expenditures, and (4) sources of income. A large nonworking committee will serve as a liaison group between the committees and the public. Each of the four groups is under the leadership of a prominent businessman. The membership varies from 50 to 100 persons.

★ Interlaken, N. Y. The Interlaken Central School Board has appointed a citizens' committee of 22 members to assist in the development of a new school building program. The committee made two exploratory visits to four elementary school units. Later, the committee met with the board and the school architect to take up problems concerned with the proposed building program.

★ The Athens High School joint board, Athens, Pa., operates with a series of committees, which actively study problems assigned to them and recommend action. The committees include finance, building and grounds, teachers, curriculum, transportation, cafeteria, textbooks and supplies, and athletics. Board members who are not on the operating committee share in the work of the board. Directors from all districts participate in the work of the board and time-consuming fact finding and study take place in committee meetings. Committee recommendations have proved valuable and they are generally approved by the board.

★ At Marion, Ohio, a new position of director of instruction has been created for the current school year. Harold Edwards was appointed to the position.

The second annual summer workshop for the school staff was held, with an attendance of 200 persons. The board paid the expenses of 16 out-of-town consultants and furnished three meals a day in the Taft School lunchroom for those participating in the two-day conference.

★ Holland Patent, N. Y. The board of education has completed a revision of its school insurance program. The new program is intended to simplify the fire-insurance coverage and place it on a more uniform budget procedure. The board has extended the Social Security coverage to all nonteaching personnel.

★ Hammond, N. Y. For the second year, the board of education allows one half day a month for faculty meetings during school hours. During those days, the children are dismissed at noon, a lunch is served to the faculty, and the meetings are held in the afternoon. The plan has proved a good morale builder for the faculty for they feel that they should not have meetings on their own time.

A reporting day in two of the four quarters is used for reporting to parents of children. The report is made by the teacher personally and has proved much more worth while than a written report. The parent-teacher unit assists by having some of the parents act as hostesses.

★ Canajoharie, N. Y. A dual safety instruction program has been used by teachers in the West Hill School. The class instruction includes safety habits, supervision of playgrounds, and traffic safety. The class instruction features well-prepared booklets, stories, discussions, and film pictures of correct safety procedures. It also includes trips to dangerous traffic intersections.

School Administration in Action

FOR WHAT REWARD?

The October weekly school bulletin of the La Mesa-Spring Valley School District, La Mesa, Calif., which is distributed to all staff members, contains a highly interesting article on the functions of the board of education. The article points out that board members render high service to the community and receive no pay other than the "thanks" of fellow citizens:

Satisfaction in knowing they have rendered high service to the community is the only reward for membership on the board of education. Receiving no pay other than the occasional "thanks" of fellow citizens, the board sets and is legally responsible for the over-all policy of this school system. This tremendous responsibility involves "everything"; budget, buildings, salary, curriculum, maintenance, personnel, equipment, etc.

Elected by the public, board members are first on the firing line of community opinion. Since every action they take is a public action, their operations are under continuous scrutiny of the press, local and county governments, civic groups, staff members, school patrons, and taxpayers. Inevitably charged with final responsibility for every action taken by members of our professional team, the board must constantly rely on the professional integrity of each of us regarding the operation of our rapidly expanding district.

In addition to attending meetings and, somehow, conducting their own private business and household duties, the board must take time out to keep abreast of current educational trends and legislation — must be "up" on all phases of school business, both for intelligent handling of items at meetings, and for scores of personal and telephone contacts made with them each day by interested citizens.

Unwavering in the face of various pressures through the years, our board has worked unceasingly for higher salaries and better working conditions for our staff; greater educational opportunities for children of the community. One of the only things they have ever done even in part "for themselves" is to order comfortable chairs for their meetings, many of which run until midnight or after.

The biggest single item affecting the morale of any educational team is the knowledge that behind them stands an understanding and sympathetic board of education. We have such a board, and to Dr. David Jessop, Mrs. Margaret Burnett, Mr. Elmer Criag, Mr. Arthur Dahlquist and Mrs. Albert Peters goes the heartfelt "thanks" of each of us for a job which, though perhaps we haven't emphasized it enough, isn't as "thankless" as it might seem.

OFFER EXTRA SERVICES

Six central schools in Albany County, N. Y., united during the fall of 1953, to give extra services to boys and girls over and above the ability of each school to furnish independently. New teachers employed by the co-operative board comprised a teacher of driver training, a reading consultant, and a school psychologist. These services are financed by the school districts affected on a pro rata basis.

The work is conducted by an administrative board, composed of five members from the participating schools, and includes Howard J. Picard, Guilderland Central; George C. Northrup, Berne-Knox; John E. Glenn, Bethlehem; Edward Stanton, Ravena-Coeymans; and Paul Crane, North Colonie. Olin Bouck and Henry E. Briggs are the executive officers of the board.

TEACHING CITIZENSHIP

How would you respond, if as a newcomer in a chosen foreign land, you suddenly found that the public schools were to hold classes which would help you meet the requirements of citizenship?

Teachers in the public schools of Ontario, Ore., under the direction of Miss Elizabeth B. Rader, supervisor of elementary education, recently volunteered their services without compensation for this undertaking. A total of 48 students appeared at the opening session, but eventually 165 enrolled. Sixteen different nationalities were represented. There were Japanese, a large group of Europeans, and some young adults from Central America and Australia.

Since many of them already spoke two languages and were well educated, they made rapid progress when they had individual attention in the night school class. The instruction covered two hours, two nights a week.

The classes proved an excellent example of community service and co-operation. Many community groups co-operated. The *Argus Observer* assisted the school by giving publicity and by furnishing newspapers for use in the classes. The local Radio Station, KSRV, made announcements and broadcast news items about the school. Most of the teachers were from the faculty of the elementary school, but teachers from Vale and Nyssa also came to help on some evenings.

Free instructional materials were used. The DAR citizenship manual, published in different languages, was found to be helpful. There were some materials which were used interchangeably between the day schools and the night schools.

The group was divided into four different sections. One group was composed of Japanese more than 50 years of age, and taught by a Japanese minister. A few of these had resided in the area for many years, but under the Exclusion Act, could not become citizens.

A second group comprised those who had been in the United States long enough to meet the residence requirements and who were working for citizenship papers.

A third group, rather small, comprised people who spoke, read, and wrote a limited amount of English. This class of 16 had for their aim greater skill in reading, writing, and speaking.

A beginning group, made up of 24 people who were recent arrivals in the United States, used very little English and had no skill in reading and writing the language. These members made rapid progress and today they sing, and know the underlying meaning of the words "America" and the backgrounds of the Constitution. They learned sentence construction, some phonics, and did considerable reading.

The greatest change of all was that when they came they were timid, afraid, and suspicious. Today they are confident, at ease, and at home in any group.

This one is going to keep us awake nights.

(Sandeson in the Fort Wayne News-Sentinel)

PLEDGE ALTERED

Following a protest by the local Veterans of Foreign Wars, the board of education of Summit, N. J., has ordered the phrase "a future citizen of the world" deleted from the citizenship pledge recited in the Summit Junior High School. The pledge read:

"I, a student of Summit Junior High School and a future citizen of the world, promise to obey and uphold the laws of my country and school. Therefore, I must be loyal, courteous and trustworthy and work for the health, success and happiness of all people."

NATIONAL SURVEY OF SCHOOLS

A national survey of public school systems in some 200 principal cities and towns in 37 states will be conducted shortly by the Associated Public School Systems, an affiliate of the Institute of Administrative Research of Teachers College, Columbia University. The study will involve 3500 schools with an enrollment of 3,000,000 children, and will take the form of a diagnostic study by which each participating community will be able to see how it compares with 200 other communities. The first phase will measure the basic factors in the school systems, such as budgeting, courses in safety, music, art, reference materials, books, and films. The second phase will consist of an analysis of the school's relationship to the community, including tax rates, citizen opinion of education, number of college graduates, and professional employees in the community.

REGULATE EMPLOYEE FUNDS

The St. Louis, Mo., board of education has adopted a set of rules to regulate the collection and handling of employee funds intended for charitable purposes and the mutual advantage of employee groups. In the past such funds have been collected on a cash basis only; receipts have not been given; accounts have not been audited; and reports of expenditures have not been available for public or official inspection.

The new regulations require that an employee group desiring to make charitable contributions designate representatives to canvass the group. Money collected will be turned over to an employee contact committee. Funds received by the committee will be handled and disbursed by a treasurer, who will be bonded, and accounts of the committee will be "properly audited and publicized."

CITY WITHOUT COAL

Without coal a great modern city is a helpless cripple. Heat. Lights. Refrigeration. Transportation. Elevators. Signal systems. Telephone. Industry. All these depend on coal.

One modern city came near such paralysis. That was Berlin in 1948 when the Russians thought to strangle it into submission. Of all the cargo flown into Berlin, 64% was coal. Nearly 1,500,000 tons. Enough to fill 300,000 big, hopper coal cars. That coal was like new blood in a dying man's veins.

We don't fly much coal here in America—occasionally to an arctic defense base or a bag dropped to a storm-isolated farm house. Coal is something we have always taken for granted. There's plenty to last a thousand – maybe two thousand years. It is widely distributed; and the great coal-hauling railroads like the C & O are equipped to move it rapidly.

For instance, the C & O has invested many millions of dollars in great coal-handling docks at Newport News and Toledo to facilitate water shipments to Atlantic and Great Lake ports.

Coal is one natural resource you don't need to worry about. It is the one fuel that will always be plentiful.

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COAL...FUEL OF THE FUTURE

Bring your fuel problems to C & O

As the world's largest carrier of bituminous coal, the C&O is intimately familiar with every phase of coal use. We have a large staff of experts who will gladly help you to locate the coal best suited to your needs; to help you use it most efficiently; to help get it to you most economically.

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Chesapeake and Ohio Railway
2104 Terminal Tower
Cleveland 1, Ohio

NEW JERSEY SALARIES

There is no significant difference in teachers' salaries, based on the size of school districts in six northern New Jersey counties, according to findings in a survey made in October, 1953, by Principal Harold L. Ritchie, of School No. 1, Peapack and Gladstone School District, N. J. In 27 districts, the average minimum salary of teachers with four years' preparation was $3,000; with five years, $3,200. The maximum, after 16 years' experience was $5,300 for four years' preparation; $3,500 for five years' preparation. Annual increases are $150.

BOULDER SALARY SCHEDULE

The Boulder, Colo., board of education has revised the teachers' salary schedule to provide minimums of $2,950 and $3,150, respectively, for the A.B. and M.A. degrees, and maximums of $5,050 and $5,300. Twelve years of service are required to reach the maximum salaries.

SALEM BUILDS

Salem, Ore. The board of education has completed preliminary plans for a new senior high school building, to be completed and occupied in September, 1954. A principal for the high school has been appointed, who will have the task of developing a high school from scratch, including the setting up of a program, the selection of a staff, the planning of an activity program, and the purchase of equipment and supplies.

The board has let contracts for the construction of an administration building, to be ready in June, 1954. The building will house all phases of the school system's central administration.

SCHOOL BOARD POLICIES

The school board of Dist. No. 26-C, Nyssa, Ore., has adopted new policies in administration. The policies are intended to govern the work of the board of directors, the school faculty, the noncertificated personnel, the curriculum, the students, and the use of school facilities.

AWARD TO BOARD MEMBER

The New York State Teachers' Association has given the 1953 "Alfred E. Smith Award for distinguished lay service to public education" to George D. Rider, of Cobleskill, N. Y., who was one of the leaders in providing urban standards in education for rural children.

He was president of the Cobleskill board of education in Schoharie County for thirty years, and has been president of the New York State School Boards Association.

SCHOOL BOARD ACTIVE

The school board of Gouverneur, N. Y., has had a busy school year, under the leadership of Andrew K. Laidlaw, president. A study has been made of the working drawings of five new elementary schools and alterations and expansions to the high school.

One of the board members has participated in a session of Institute No. 8 of the New York State Cooperative Development of the Public School Administration Program. The board was represented in a panel discussion of school design at the annual meeting of the New York State School Boards Association.

The board has encouraged emphasis on the improvement of the reading program for grades one through twelve, by providing a reading consultant and specialist for grades seven through twelve, and a helping teacher for grades one through six.

COMING CONVENTIONS

Jan. 13–14. Tennessee School Boards Association, **Nashville. Secretary, William B. Rich, Nashville 3. Attendance, 500.**

Jan. 14–15. Indiana City and Town Superintendents Association, Indianapolis. Secretary, Harry H. Mourer, Bedford.

Jan. 18–19. Nebraska State School Boards Association, **Kearney. Secretary, Dr. Frank Gorman, Omaha.**

Jan. 19–21. Manitoba, Canada School Trustees Association, Winnipeg. Secretary, Robert Love, Melita, Manitoba. Attendance, 700.

Jan. 22. Oklahoma State School Boards Association, **Oklahoma City. Secretary, H. E. Wrinkle, Norman. Attendance, 500.**

Feb. 2–4. Minnesota School Boards Association, **Minneapolis. Secretary, William A. Wettergren, St. Peter. Exhibits. Attendance, 2000.**

Feb. 11–13. National School Boards Association, **Atlantic City. Secretary, Edward M. Tuttle, 450 E. Ohio St., Chicago, Ill. Attendance. 1200.**

Feb. 13–18. American Association of School Administrators, Atlantic City Auditorium. Secretary, Dr. Worth McClure, 1201 16th St., N.W., Washington 6, D. C. Exhibits.

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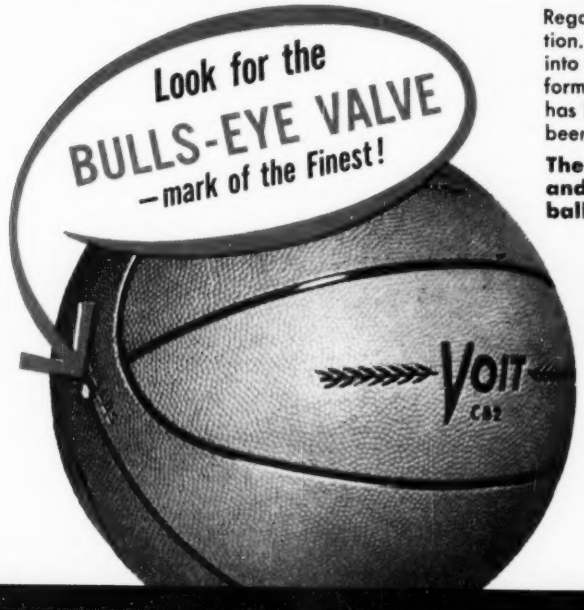

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SCHOOL BUILDING CONTRACT

(Concluded from page 41)

Damages. Provision should be made for the settlement of all claims for damages arising under the contract.

The right of the board of education to do work. The broad of education should be given authority to take possession of the premises and perform the work whenever the contractor neglects to prosecute the work. Such action by the board should not prejudice the board's right to recover damages under other provisions of the contract.

The right of the board of education to terminate the contract. The board of education should be given the right to terminate the contract for the following reasons:

1. Contractor adjudged a bankrupt
2. Contractor makes a general assignment for the benefit of the creditors
3. The appointment of a receiver due to the insolvency of the contractor
4. Persistent or repeated refusal of the contractor to supply enough skilled workmen or proper materials
5. Failure of the contractor to make prompt payment to subcontractors or for labor and materials
6. Persistent disregard for laws, ordinances, or the architect's instructions by the contractor
7. Substantial violation by the contractor of any provision of the contract

The contractor's right to stop work or to terminate the contract. The right of the contractor to stop work or to terminate the contract whenever he is not paid for his work as provided should be stated.

Cash allowance. A declaration should be made by the contractor that the contract sum included all allowances named in the contract documents and that he shall make no claim for expenses or profits for items covered in the contract.

Settlement of disputes. When normal procedures fail, there should be provision for a final method of settling disputes. Arbitration is a widely used method. "The Standard Form of Arbitration Procedure" of the American Institute of Architects is recommended as a guide for arbitration proceedings.

Assignment. A statement should be made prohibiting either the contractor or the board of education from assigning the contract without the written agreement of the other party.

Subcontracts. The contractor should be required to accept responsibility for the acts of his subcontractors. The board of education should reserve the right to approve all subcontractors. The absence of any contractual relationships between subcontractors and the board of education should be stated.

Separate contracts. The board of education should reserve the right to let other contracts in connection with the work and to use its own employees.

Mutual responsibility of contractors. Provision should be made for settling claims for damages between contractors.

Contractor's guarantees. The contractor should state his responsibility for providing good workmanship and materials and for correcting any defects appearing therein within a period of one year from the date of substantial completion.

The architect's status. The scope of the architect's authority should be defined. He should be granted general supervision of the work. Impartial interpretation of the contract provisions should be made by the architect.

Use of the premises. The contractor should be required to use the premises in accordance with law, ordinances, and the instructions of the architect. He should keep the premises free of rubbish and at the completion of the work leave the premises "broom clean."

Utilities. The contractor should be required to state his agreement to furnish telephone, heat, light, power, water, and other utilities needed during the construction of the building.

Covenant against contingent fees. The contractor should warrant that he has employed no person other than his regular staff to secure the contract for him on the basis of any commission or contingent fee.

Officials not to benefit. A statement should be included prohibiting any member of the board of education or any administrative officer of the board from receiving benefit from the contract.

Installations of furnishings. The right of the board of education to install furniture and equipment during construction should be stated.

Conferences. To facilitate the performance of the work the architect should be granted power to call conferences of all parties concerned.

Occupancy of the structure. The board of education should state its right to occupy the structure when it is substantially completed.

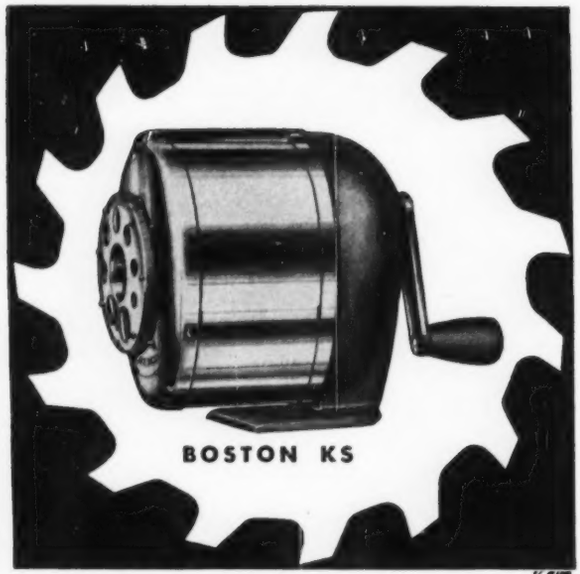
Emergency termination of the contract. Provision should be made for the emergency termination of the contract in the event the work is delayed for a period of six months due to a shortage of critical materials. The recommended procedure is that the board of education purchase all materials from the contractor and reimburse him for actual expenses.

Standard Bond Form

The bond form should provide for the identification of the parties to the bond, and the project for which the bond is written. It should stipulate the amount of surety's liability and to whom he is liable. The bond should accrue to the benefit of the contractor's creditor's and the board of education when losses are suffered.

The time limit for submitting claims under the bond should be stated. The surety should agree to waive notice of changes made in the contract, and that such changes do not affect the validity of the bond.

The bond should be signed by the contractor, the sureties, and by the legal approver.



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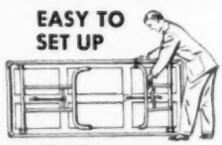

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SELECTING THE SCHOOL SITE

(Concluded from page 54)

6. Location of Existing and Proposed Public Transportation Facilities

7. Location of Recreational Facilities

8. Existing and Proposed Zoning Ordinances

9. Location of Undeveloped or Vacant Land Areas

10. Location of Existing and Proposed School Sites (With circles illustrating reasonable walking distances)

11. Plot Plan of Proposed School Sites (Special features, adjoining streets, and service connections indicated)

12. Relief Features of the Proposed School Site (Elevations and slopes indicated)

13. Geological Features (Types of subsoils and underlying rock formations indicated)

Preferably, school sites should be purchased far in advance of actual need. Ten years, five years, or even one year hence is often too late to acquire an adequate site. Too frequently school districts have been saddled for another era with unsuitable "leftovers" of land.

Estimated future school population trends can provide the basis for the early determining of school plant and school site needs. New sites should be located in respect to the changing residential patterns of the community and should be of a size adequate both for present and future needs. Selection of the school site with wisdom, foresight, and courage will pay financial and educational dividends during the years ahead.

PERSONAL NEWS OF SCHOOL OFFICIALS

DR. WRIGHT PASSES ON

Dr. Frank L. Wright, 69, a member of the St. Louis board of education and Professor Emeritus of School Administration at Washington University, died in his sleep, November 11, 1953, apparently of a coronary thrombosis. Born on a farm near Bronson, Kans., he held a bachelor's degree from Kansas State Teachers' College, a master's from Wisconsin, and a doctor's degree in education from Harvard University. He came to Washington University in 1924 and retired in 1951. He was for 16 years a member of the Webster Groves, Mo., school board, and in 1948 was elected to the St. Louis board. He was active in church affairs, was president of Kappa Delta Pi, educational honor society, and took part in various civic movements. He was an outspoken and constructive critic of school affairs, and did much to improve the St. Louis school administration by advocating unification of administration and higher efficiency of all board member service.

PERSONAL NEWS OF SCHOOL BOARDS

★ FREDERICK D. CHAMBERS, for 19 years auditor of the New York City board of education, died November 15, at the age of 73. He retired in 1942, after a 46-year career in the New York and Brooklyn city schools. For some years he was active as a member of the Association of School Business Officials, particularly in the development of improved school accounting and budgeting methods.

★ MISS LELA VAN SCHAICK has been appointed as full-time secondary supervisor of the Duanesburg School Dist. No. 1 at Delanson, N. Y. MRS. BETA BASK was named elementary supervisor.

★ DR. LAWRENCE JOHNSON, superintendent of the Canal Zone schools, died recently. He is succeeded by Sigurd E. Esser, of Balboa, Canal Zone.

★ DR. ALLEN S. HURLBURT has been appointed Assistant State Superintendent of Instruction for the state of North Carolina. In his new position, Dr. Hurlburt will co-ordinate the department's supervisory services in the field of instruction.

★ KERRY SMITH, formerly with the U. S. Office of Education, is now on the staff of the NEA Secondary School Division. JOHN H. LLOYD has succeeded Mr. Smith as director of public relations for the office of education.

★ MRS. ESTHER NIEMI and T. S. LONG have been re-elected as members of the board at Warren, Ohio.

★ The board of education of Wilton, Conn., has reorganized with TILFORD W. MILLER as chairman, and MRS. CAROLINE C. ROUNDS as secretary. EDWARD E. BOOHER was elected as a new member of the board.

★ TIMOTHY W. ROSE has been appointed director of school building operations for the board of education of Gary, Ind. His duties will include supervision of all operational services, including custodial personnel, care and cleaning of buildings, operation and care of heating equipment.

★ At the November election at Youngstown, Ohio, CLARENCE AMSTUTZ was re-elected to the Boardman local school district board. HARRY STEPHENS and DR. ROBERT N. HEAVER were elected as new members.

★ The board of education of Lindsay, Okla., has reorganized with D. G. MCLELLAN as president; T. J. GOODNER as vice-president; and FOCH DAVIS as clerk. Foch Davis and T. J. Goodner are new members named to succeed J. E. Cruse and Dr. W. H. Smith.

★ MRS. L. D. MELTON, a member of the school board at Oklahoma City, Okla., is making a valuable contribution to the group. She holds a master's degree and was a teacher of English in two state educational institutions.

★ The Educational Policies Commission of the N.E.A., has announced the election of MRS. SARAH C. CALDWELL as chairman, and MR. N. D. MCCOMBS, of Des Moines, Iowa, as vice-chairman. Mrs. Caldwell, who is a classroom teacher in Akron, Ohio, was president of the Association in 1952.

★ J. L. HARRIS, of Jonesboro, Ark., succeeds H. L. Stanfill as superintendent at Marvell, Ark.

★ LLOYD TESELLE has assumed his duties as superintendent of schools at Fremont, Neb.

★ DON MACLAY is the new superintendent of schools at Fairbury, Neb.

★ NORMAN E. KUKUK has been elected superintendent of schools at Quincy, Mich.

★ H. L. STANFILL is the new superintendent of schools at Osceola, Ark.

MINNETONKA HIGH SCHOOL

(Concluded from page 51)

The Minnetonka School District No. 7 was organized March 15, 1949, in an election merging six school districts. The new building site was purchased October 11, 1949, and two bond issues were approved by the voters totaling $1,888,000. All of this amount went into the contracts for grounds, building, and equipment. Construction started April 11, 1950, and students attended first classes on September 1, 1952.

The objective sought through this school plant was the education of the *whole* person through a wide range of learning experiences — experiences outside, as well as inside the classroom; education of the emotions as well as the intellect; of the hands as well as of the head; and education for desirable social behavior.

While high schools once prepared the few for college, today they seek to prepare for life the great majority of students ending their in-school education at graduation. Hence the wide range of facilities available in this new building has a real purpose.

RANCHO VILLAGE SCHOOL

(Concluded from page 35)

Equipment Completeness

Classroom cabinets. Very complete. One sink in each room, with drinking fountain spigot attached. Also a mirror.

Chalkboards and tackboards. Adequate in size and number, equipped with map and display rails.

Sanitary facilities. Adequate in number and well placed.

Natural lighting. Bilateral — controlled with roof overhangs and kind of glass used.

Auxiliary facilities. Full provision for all auxiliary storage, administration, and faculty facilities. Play terrace, outdoor tool storage rooms, shelters over play terraces, and garbage facilities.

Special equipment. (1) public-address and intercommunication system installed; (2) some rooms darkened for visual aids; (3) program clock and buzzer system; (4) bell system; (5) signal system — with outside signals; (6) germicidal lights in clothes closets; (7) floodlights at main entrance; (8) underground electric service to building; (9) chime connection from main entrance to the principal's office and the custodians' quarters; (10) recessed space for electric water coolers; (11) two duplex electric outlets in each classroom; (12) adequate electric outlets in halls.

The cost of the complete school for this area is approximately:

Land	$ 6,500.00
Paving and sanitary facilities extended to site	11,789.07
Cost of building	351,718.60
Leveling of grounds	1,711.89
Cost of equipment (estimate)	21,500.00
	$393,219.56

The total square feet area of the building is 30,500. The total cost of the building less play areas ($9,500) is $342,218.60, or approximately $11.22 per square foot.

SCHOOL DESIGNS

(Concluded from page 53)

fifteen, or even fifty years from now? There are times when such questions as these enter very practically into current building programs of school planning. And to ignore them is to court certain disaster later.

Then there's future growth. What about planning for additions? Addition planning in this particular case, on this particular site, in this particular community, for this particular school. Will it be easier and better to plan for future growth and additions by building a single-story plant that will permit expansion in wings, or would it be wiser to think skyward?

Last but not least certainly, there is the ever pressing item of obsolescence. What in your case will best check the generally rapid rate of school plant obsolescence in this jet-propelled age? Flexibility may be the key word to this. But what type of structure will permit the greatest flexibility, weighing all the advantages and disadvantages? Will it be the single-story-design plan? Or multi-story? Again there is no ready answer. As discriminating buyers of school building plans or as architects we must not prophesy in part. It is too often fatal.

None know better than school administrators that the investment in architecture is an important one. School plants are costly. More than that they are the temple and housing of a rather sacred trust. Several generations perforce will pass in and out of a new schoolhouse. What can be said of our judgments? Did we plan well? Did we even secure those advantages of operation and maintenance we wanted for ourselves? Such questions are all linked inextricably with the single-story vs. multi-story topic. No one should be impatient, therefore, with a serious reluctance on the part of the careful and conscientious school architect to substantiate or acquiesce to mere prejudice or preconceived ideas about the multi-story vs. single-story problem.

PERSONAL NEWS OF SCHOOL BOARDS

★ The Eugene, Ore., school board, on July 1, seated a new member, CHARLES E. TEAGUE, for a 5-year term, and a new chairman, HARRY I. HAMILTON, for a one year term. Under an Oregon law, a board member serving the fifth year of his term automatically becomes chairman.

★ The board of education of the Central School Dist. No. 1, Hyde Park, N. Y., has reorganized with ALAN D. MACY as president; MRS. MARGARET R. KENDALL as clerk; and WALTER D. TALLMAN as treasurer. WILLIAM P. SCHRYVER is a new member, elected for a five-year term, to succeed Ralph R. Smith.

★ WILLIAM G. CARR, executive secretary of the National Education Association, has been appointed a member of the board of directors of the American-Korean Foundation.

Rubber Stretches Our Budget

Edwin W. Hunt *

It isn't humanly possible, of course, but the purchasing agent of a public school is expected to be an expert on 1001 items, ranging from erasers to athletic equipment.

When there are only a few products available in a certain field, the purchasing agent's problems are simplified. It isn't particularly difficult to select the quality from among a few items. But in some fields, such as the choosing of athletic equipment, the problem becomes both complicated and confusing.

In our school program, we use virtually all rubber-covered athletic balls at the elementary level and an overwhelming percentage at the junior high and senior high level. In fact, about the only leather balls we still use are those needed for interscholastic competition. And, in this instance, the trend is more and more toward the use of rubber-covered footballs in interschool competition, especially since both the National Collegiate Athletic Association and the National Federation of High School Athletic Associations have changed their rules to allow the rubber-covered balls to be used officially.

The long wearability of rubber balls cuts purchasing costs so that it is possible to purchase other badly needed items such as badminton, golf, and archery equipment.

Know Your Equipment

Even in the highly specialized field of rubber-covered athletic equipment, the purchasing agent must know what he's doing. Naturally, it's impossible to tell how a ball is going to wear or perform merely by looking at it. During my years of experience, I have formulated several rules to follow before I spend the school system's money.

First, I rely upon a proven type of construction and make certain that it conforms to the specifications of official size, shape, and weight. Then I do the following:

1. Check the outside cover and test the ball's "feel."
2. Check on the ball's bouncing characteristics.
3. Check the contour and make sure it is true and firm.
4. Check the valve and see if it's easy to work and a replaceable type.
5. Make certain that the manufacturer's representatives show you their various samples and sections so that you many see how the ball is built inside.

Investigate Brands

Since certain brands outlast others many times over, my budget limitations force me to investigate and take advantage of this economy. In addition, purchasing through reliable outlets gains me several advantages. For example, a reputable dealer will give me service throughout the year, which ofttimes amounts to between 15 and 25 per cent of the purchase. Such service may include aid on repairs, proper storage, advice, and, where necessary, replacements.

A purchaser should remember the equipment he buys should be of good grade to insure long-lasting performance. This cuts down the amount of purchasing involved and also lessens the cost per unit.

I conducted careful tests in three elementary schools and periodically, for a period of a year, kept track of several balls as to both popularity and wearability. I found that the quality balls, which sometimes cost a third again as much as the cheaper variety, definitely turned in superior performances and lasted much longer than the less expensive ones. But perhaps the best way to obtain an honest evaluation is by checking with coaches and physical-education instructors (which I did) to learn firsthand whether or not a product is all a salesman says it is.

As for the repair angle, I found that some balls can be repaired, especially the quality-type balls, while others can't. Through the use of repair kits at playgrounds and schools, we save both time and money, as repairs can be made on the spot.

Economical as rubber and rubber-covered athletic equipment happens to be, it can be made to last even longer by following a few simple rules. Here are some hints which may help you:

1. During the summer, or when not in use, balls should be partially deflated and stored in a dark, cool place.
2. Balls should be inflated to the pressure indicated on the ball and checked frequently to make certain proper inflation is maintained.
3. Never use a filling-station air-pressure pump to inflate the balls. Overinflation can be very harmful.
4. Impress upon the student or youngster to be considerate of equipment by explaining that his family helps buy it from part of the tax money they pay each year.
5. Rubber-covered balls may be cleaned easily with soap and water.
6. Proper storage is important. Make certain that the older stock is used first. Do not keep balls on the shelf for months at a time. Keep them in use.
7. In order to judge the performances of rubber-covered balls fairly, it is wise to keep a record of the purchase dates of all equipment; thus a true evaluation of its wearability can be made later.

Size Is Important

Also of prime consideration in purchasing athletic equipment is the welfare of the children. The equipment should be not only durable, carefully constructed, and of good quality, but also the *proper size for the age group using it*. Naturally, little fellows want to play with the same-size ball bigger boys are using. But they can have more fun, enjoy better performance, place less strain on muscles, and, in particular, learn to handle the equipment better, if they will use the size balls designed for their age group. Some manufacturers, in co-operation with physical-education instructors and coaches, have developed various-size balls for the various age groups.

To the manufacturers of rubber athletic equipment, the purchasing agent certainly owes a vote of thanks. For without the rubber balls, we would need rubber budgets. I don't know any other way we could stretch them.

*District Purchasing Agent, Montebello Unified School District.

Protective Beauty OVER ALL

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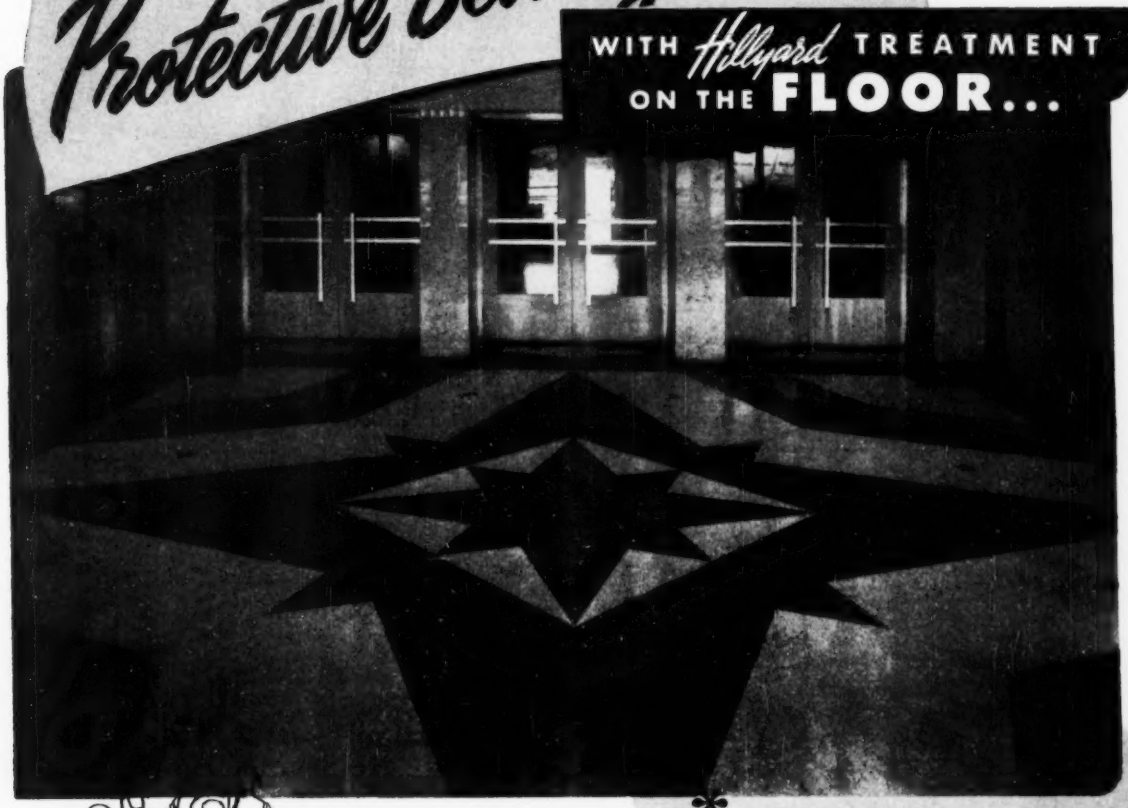

Terrazzo entrance, Rocky River School, Ohio. Protected with Hillyard HIL-TEX, finished with ONEX-SEAL, cleaned regularly with Super SHINE-ALL. Architect—Fulton Krinsky & DelaMotte, Cleveland.

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N.S.B.A. STUDY CONFERENCE

(Concluded from page 10)

tion, (3) that well-planned state and regional meetings are important, (4) that co-operation with institutions and organizations in the state to develop research, workshops, handbooks, etc., should be promoted, (5) that board members should act as leaders in local and state school affairs, (6) that associations should take a stand on important state school legislation, and (7) that a good public relations program is a *must*. This group urged that the N.S.B.A. gather and distribute to the states more information on how state associations are organized and financed, on the conduct of regional meetings and workshops, on the formulation of written policies by local boards, and on national legislation. Conversely, it urged the state associations to co-operate more fully with the N.S.B.A. by sending in information promptly when called for and by publishing and distributing information received whenever it applies to the state situation.

Group E felt that the prestige of state and national school boards associations could be advanced (1) by holding a nationwide study conference like this each year, (2) by holding regional meetings in different parts of the country, involving every state, (3) by securing fully qualified association executives at state and national levels and by paying them adequate salaries, (4) by having national representatives in attendance at all state and regional meetings, and state representatives in attendance at all district and area meetings within the states, (5) by moving the annual national meeting around the country on a circuit over a period of years, (6) by more frequent meetings of the officers and directors of the N.S.B.A., (7) by increasing consultative and information services from the national to the states, from one state to another, and from the states to local boards, (8) by developing an effective public relations bureau within the N.S.B.A., (9) by establishing an office in Washington, D. C., and developing a two-way legislative service, (10) by stimulating more research in the school board field in co-operation with higher institutions of learning, (11) by continued co-operation with the AMERICAN SCHOOL BOARD JOURNAL, seeking to publish more news of the school boards association movement, state and national, (12) by inviting members of state legislatures and of the Congress, members of state boards of education and of the U. S. Office of Education, and leaders of educational and lay groups to state and national association meetings, (13) by taking initiative when necessary and by extending generous co-operation at all times in working with other agencies for the advancement of public education at every level.

"We Are Rolling Now!"

That was the way one state association secretary summed up the Evansville conference.

Enough has been said to indicate how practical, how concrete, and how needed are the things that the leaders of associations of school boards think they should be doing in addition to what has already been accomplished. The N.S.B.A. executive committee considered on Sunday afternoon the recommendations for development at the national level and appointed subcommittees to draw up plans for definite steps ahead and means of financing them.

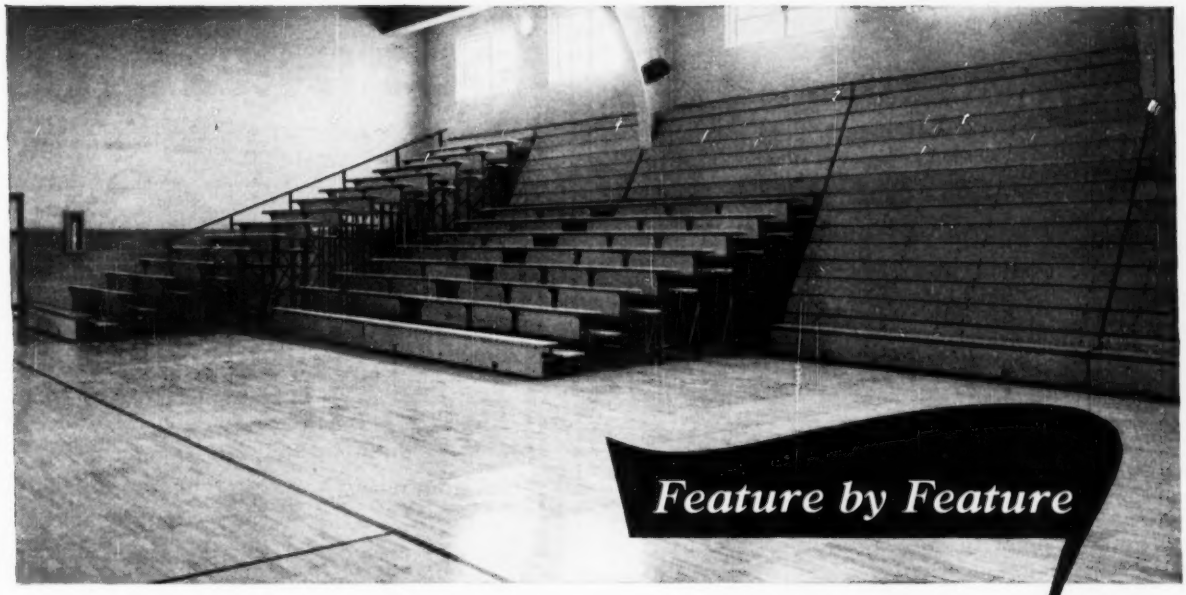
As to reactions from the state level, here are a couple from state presidents:

"In all my school business experience I have never attended a better meeting, nor one that I felt I received so much good from as this one. It really solved a lot of my problems in this state, and I hope you will hear much good news from us during the next few months."

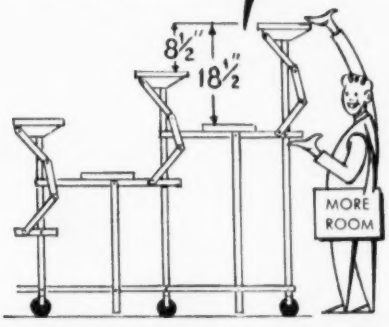
"I really believe the conference will prove to be of great value. While it is difficult to put one's finger on tangible results at once, time should show these. I know I, for one, came away with the knowledge that somehow we have to get to every district with our program and sell it from the top to the bottom."

As the Study Conference Opened

Left to right: Maurice E. Stapley, Program Coordinator; Hon. H. O. Roberts, Mayor of Evansville; Clifton B. Smith, Freeport, N. Y., President N.S.B.A.; and O. H. Roberts, Jr., President, Evansville Board of Education.

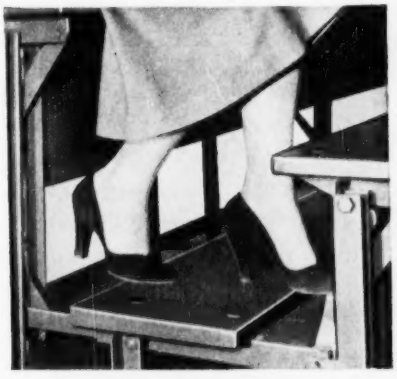


Universal Roll-A-Way Stands Meet All Modern Demands For Gymnasium Seating



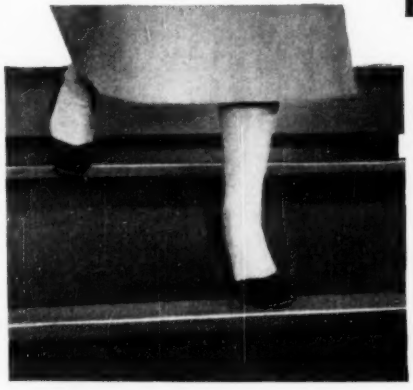
When planning a new gymnasium, think first of *Universal* Roll-A-Way Stands . . . for safe, comfortable, practical seating. Custom built to individual specifications, these stands provide maximum seating facilities and maximum useable floor space in minimum area. When not in use, they may be rolled back to the wall . . . opening approximately 70% more space for regular gymnasium activities. Feature by feature, Roll-A-Way Stands meet all modern demands. Write today for new catalog and nation-wide list of installations. No obligation.

UNIVERSAL BLEACHER COMPANY
606 SOUTH NEIL STREET • CHAMPAIGN, ILLINOIS



Standard Stair Step Rise For Easy Loading

The 8½" rise from one seat level to the next (same as standard stair steps) assures a safe, normal, easy step for any average spectator walking up and down the stands. This rise is also adequate for good visibility when the crowd is seated . . . as proved by more than 16 years' use in hundreds of gymnasiums in all parts of the country . . . yet spectators are not confronted with high steps at any time.



More Room

Every spectator has natural, comfortable position while seated on Roll-A-Way Stands. The extra distance from seat board to foot board (18½") and the centered position of the vertical filler board assure maximum space . . . permitting normal position of feet drawn back under seats. Compare this with stands which have 2" to 3" less space and vertical filler boards flush with seat fronts.

News of Products for the Schools

New Features in Mayline Art Table

The Mayline Classroom Art Table, manufactured by Mayline Company, Inc., Sheboygan, Wis., now is equipped with a solid basswood top having metal edges. These edges are applied to both the 20 by 24½-inch drawing section and the 20 by 10-inch reference top, assuring protection of drawing edges and greater ease in the use of a T Square. The drawing top can be raised through a range of 50 degrees.

ART DESK C-7702

Small items such as triangles, pencils, brushes, paints, erasers, etc., are held in place on the drawing board by a hardwood ledge strip. These items can also be sorted in the handy tool drawer at the right side of the table when not in use. The table is constructed of oak, and the finish is golden oak.

For further information write: *Mayline Company, Inc., Section S.B.J., Sheboygan, Wis.*

(For Convenience Circle Index Code 010)

Remington Initiates New Training Program

To meet the need for specialized training to promote greater efficiency in the use of office machines and equipment, Remington Rand, Inc., New York, has developed an adding machine training program tailored to fit into the regular curriculum of any school business department.

A course has been prepared consisting of instruction booklets, practice material, and a Certificate of Proficiency. The Students' Manual is the basic text for the course. It contains detailed operating instructions for maximum speed and accuracy in touch method operation. Practice exercises, sets of checks, and check stubs, and invoices for typical on-the-job work are included. The Students' Work Book is a one-time use unit containing practical problems and exercises. The Instructor's Guide is to help in the teaching of the 10-key adding machine.

Completing the material furnished is a wall chart showing a diagram of the 10-key keyboard with the proper position of the hand and fingers for touch method operation, and a Certificate of Proficiency to be given as an award to the student for achieving skill in operating the adding machine.

For further information write: *Remington Rand, Inc., Section S.B.J., 315 Fourth Ave., New York 10, N. Y.*

(For Convenience Circle Index Code 011)

Voit Improves Line Of Athletic Balls

Through improvements in construction methods and materials the new line of Voit rubber-covered athletic balls eliminate uneven wear, offer the longest-wearing cover ever employed, and retain their official specifications for life. Utilizing all major advancements in the manufacture of rubber-covered athletic goods the W. J. Voit Rubber Corp., Los Angeles, hits a new high in economy and longevity, two items of utmost importance to the schools and colleges of the nation.

Since core weakness results in many balls wearing unevenly and losing their shape, Voit's researchers have developed Armor Red, a new reinforced fabric of special red rubber which serves as a cushion and insulates against the wearing action of shock and friction. A new mold design, featuring plateau pebbling, gives the ball 49 per cent more surface, another innovation designed for

HAND-APPLIED LAYERS

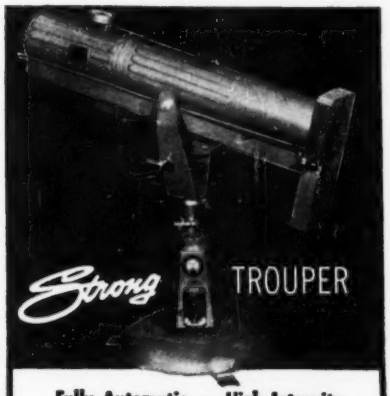
longer wear. In addition, Voit introduced a new super-butyl bladder capable of holding official playing pressure months longer than previous types, and a Protector-Kote which guards against checking and weathering caused by heat, sun, oxygen, and ozone.

For further information write: *The W. J. Voit Rubber Corp., Section S.B.J., 1600 East 25th St., Los Angeles 11, Calif.*

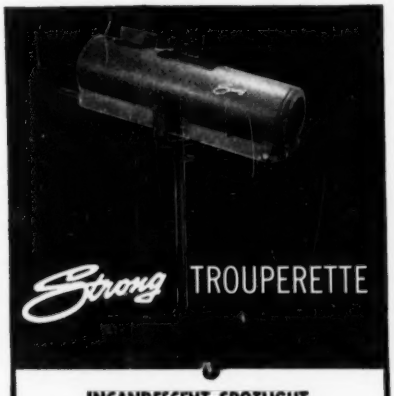
(For Convenience Circle Index Code 012)

(Continued on page 107)

Simply plug into any 110-volt outlet for an extremely bright, flickerless spot SHARP EDGED HEAD TO FLOOD



Fully Automatic • High Intensity ARC SPOTLIGHT
Burns 80 minutes without retrimming.



INCANDESCENT SPOTLIGHT
6½ times brighter head spots than other incandescent spots.

Horizontal masking control angles 45 degrees in each direction. Fast operating, 6-slide color boomerang. Mounted on casters.

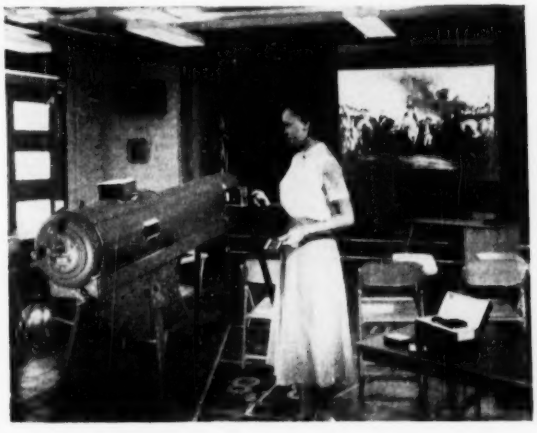
FREE YOUR VISUAL TRAINING PROGRAM FROM THESE LIMITATIONS

Gone are the days when you must confine slide projection to dark rooms. You can now project brilliant pictures of up to theatre size even in difficult to darken classrooms and auditoriums of any size with the

Strong UNIVERSAL

High Intensity A.C.

ARC SLIDE PROJECTOR



Especially useful where it is desirable to maintain daylight or artificial illumination for taking lecture notes, or where it is impractical or uneconomical to provide curtains or shades.

Readily portable from room to room. Entirely safe in the hands of a layman, it is easier to operate than the average 16mm projector. Plugs into any 110-volt A.C. outlet. The motor-driven arc operates continuously for 80 minutes without retrimming. The model 44,000 projects 3¼" x 4" slides, and with adaptations, 2" x 2" slides. Comes complete with slide carrier, power transformer, and arc lamphouse.

USE COUPON NOW TO OBTAIN FULL DETAILS AND PRICES.

Dealer Inquiries Invited

THE STRONG ELECTRIC CORPORATION
46 City Park Avenue • Toledo 2, Ohio

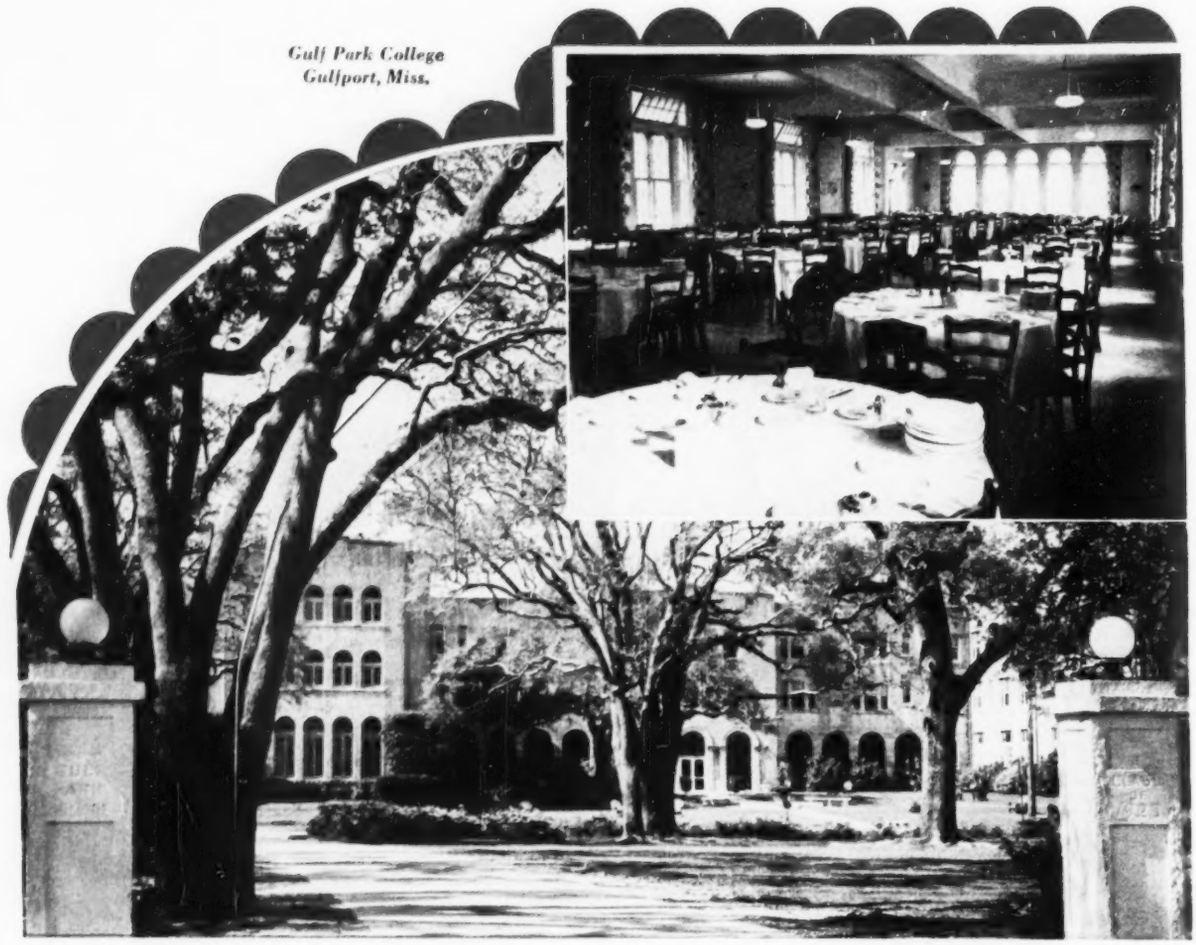
Please send brochures and prices on the Strong
☐ Trouper; ☐ Trouperette; ☐ Universal Projector.

Name .....

Address .....

City & State .....

Name of Supplier .....



Gulf Park College
Gulfport, Miss.

Radiating allurement!

Gelatine desserts that sparkle with invitation to young and old alike! Their crystal brilliancy and taste-tempting colorfulness is matched only by their rich true flavor. This irresistible goodness is found also in Sexton Creamy Chiffon Fluff and Sexton Delicious Puddings. You may serve these products of our own Sunshine Kitchens with assurance that their economical cost will not lessen your patron's enthusiasm.

Sexton
Quality Foods

JOHN SEXTON & CO., CHICAGO, 1954

Descriptive Material

(Continued from page 104)

★ **"Pencil Sharpeners," a booklet by James W. Fitch,** is described as an unbiased report, and a guide to better buying, longer service, and more efficient use, upon its recent release to the public. This service booklet is available from: *C. Howard Hunt Pen Co., Section S.B.J., Camden 1, N. J.*

(For Convenience Circle Index Code 013)

★ **A new four-page folder, "Foamglas, the Long-Life, All-Temperature Pipe Insulation,"** has been made available by the Pittsburgh Corning Corporation, Pittsburgh. This new folder features on the job installation photographs pointing out the advantages of cellular glass insulation for pipe temperatures between —300° and + 800° F. A complete listing of the physical properties of Foamglas and condensed recommended specifications make the folder an excellent reference for engineers, applicators, and insulation contractors. Obtainable from: *Pittsburgh Corning Corp., Section S.B.J., 1 Gateway Center, Pittsburgh 22, Pa.*

(For Convenience Circle Index Code 014)

★ **Peerlite modern air-cooled fluorescent fixtures,** offering beauty, efficiency, and flexibility, are described in a new 8-page booklet. Now available free to the lighting specialist or consultant, Catalog folder No. 911 gives complete engineering data and dimension. Write: *Edwin F. Guth Company, Section S.B.J., 2615 Washington Blvd., St. Louis, Mo.*

(For Convenience Circle Index Code 015)

Advertisers Products and Services

Advertisers in this index are given a code number in addition to the page number on which the advertisement appears. Refer to the advertisement for product or services available. Write direct to advertisers or use the information card in requesting information from a number of advertisers.

(Index continued on next page)

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
First Class Permit No. 1112, Sec. 34.9 P. L. & R., Milwaukee 1, Wis.

AMERICAN SCHOOL BOARD JOURNAL

P. O. Box No. 2068

MILWAUKEE 1, WISCONSIN

Index to Advertisers — continued

NEWS OF PRODUCTS FOR THE SCHOOLS

For Your Product Information Request

The advertisements in this issue have been given a code number for your convenience in requesting information on products, services, booklets, and catalogs offered. Encircle the code number of the advertisement in which you are interested, clip and mail the "postage paid" card. Your request will receive prompt attention. BRUCE — MILWAUKEE.

THE AMERICAN SCHOOL BOARD JOURNAL — January, 1954
400 North Broadway, Milwaukee 1, Wis.

Please send information offered in the advertisements we have encircled.

ADVERTISING INDEX

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NEWS OF PRODUCTS FOR THE SCHOOLS

101	011	012	013	014	015

Also information on .....

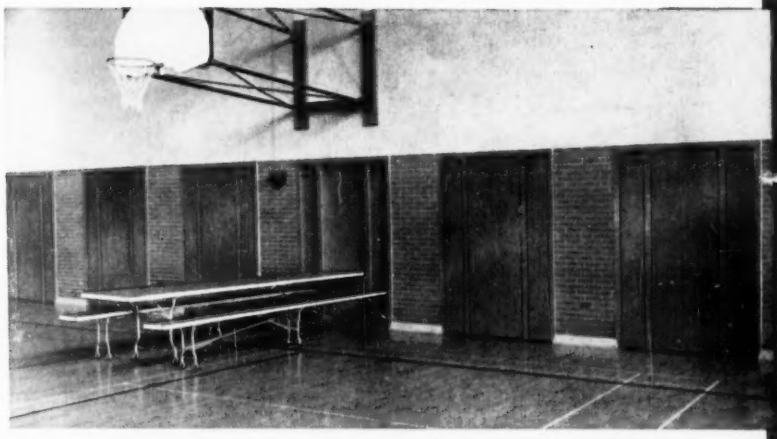
Name .....
Please Print

Title ..... **School** .....

City ..... **Zone** ..... **State** .....

Talk with your architect about Schieber folding equipment

Multi-purpose rooms mean better schools at less cost —but the equipment you specify is all-important!



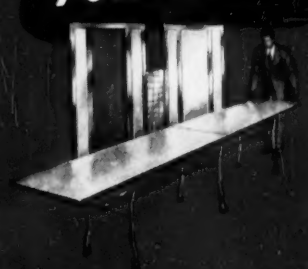
Gymnasium to lunchroom for 200 in 8 minutes. Rugged, Schieber folding tables and benches are proven and in daily use in hundreds of schools from coast to coast. It's easy to understand why hundreds of school architects specify this make and why an increasing number of school administrators recognize this equipment as the logical medium in building the schools they need for less.

Schieber's long 17 year experience building these units has resulted in the incorporation of features that assure maximum life, easier, safer operation and complete efficiency.

In-wall

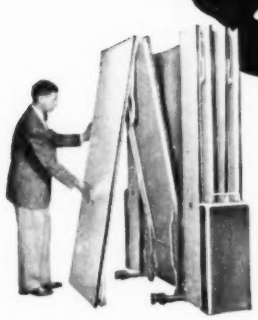
All-steel welded tables and benches of superior strength, rigidity and durability. Sanitary surfaces. Units remain attached to wall pockets.

Port-a-Fold



Steel pockets and understructure. 36", 7 ply steel reinforced plywood tops with plastic surfaces. Detach from pockets and roll to any position.

Mobil-Fold



Two sets of detachable Port-A-Fold type tables and benches fold into caster equipped steel carrier and roll away to wall or storage area.

Write for catalogs

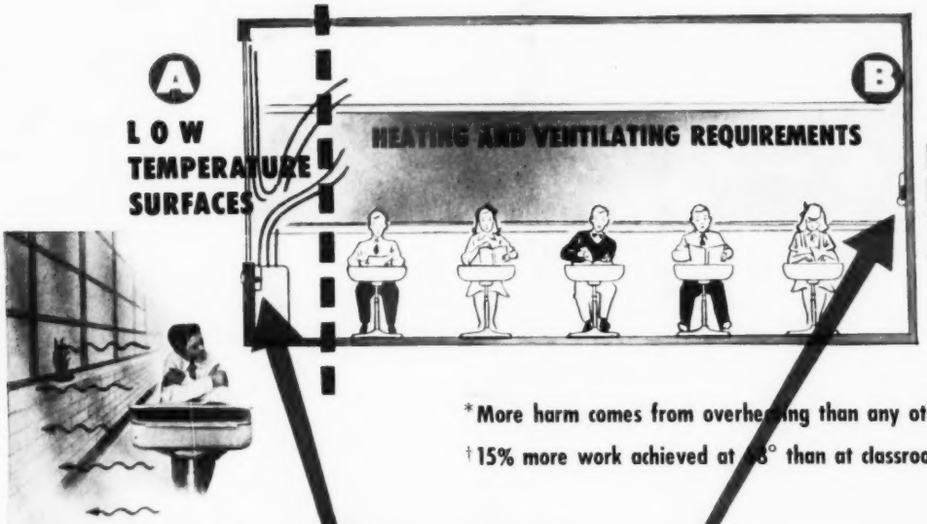
SCHIEBER SALES COMPANY
DETROIT 23, MICHIGAN

A NEW STANDARD OF THERMAL COMFORT

PLUS REAL FUEL SAVINGS

through features found only in this

NESBITT SYSTEM

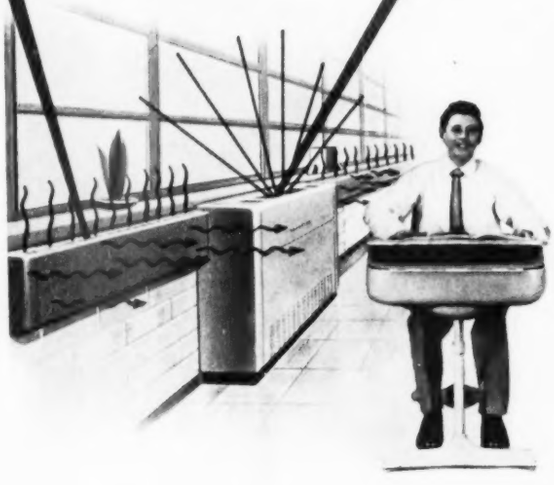


*More harm comes from overheating than any other cause.

†15% more work achieved at 68° than at classroom temperatures of 74°.

Cold surfaces rob body heat

A This radiation provides a heat *gain* to the body in the presence of cold wall and window surfaces. It does so for the full length of windows. It continues this protection against the discomfort of these cold surfaces even after the unit ventilator has satisfied the general heating requirements of the room. This no other system does. Moreover the warm convection heat currents flowing upward and over the cold surfaces completely eliminates downdraft.



B Room temperatures may often be 4 to 5 degrees lower when protection from the chilling effects of cold surfaces is provided. So frequently overheating is the result of an attempt to provide better thermal comfort by a higher ambient temperature whereas what is needed is not more total heat but heat at the right place. This is just what Nesbitt Wind-o-line does. This difference of 4 to 5 degrees also means a reduction of upward of 5% of your heating fuel cost.

**Source—*Report of New York State Commission on Ventilation.*

This new standard of thermal comfort and these fuel savings are available to you now, but to get them you should insist on

NESBITT *Syncretizer* WITH WIND·O·LINE

MADE AND SOLD BY JOHN J. NESBITT, INC. PHILADELPHIA 36, PA.—SOLD ALSO BY AMERICAN BLOWER CORPORATION